Utah Greater Sage-Grouse

Draft Resource Management Plan Amendment

and

Environmental Impact Statement

US Department of the Interior,
Bureau of Land Management
May 2018

BLM

The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

Cover Photo: Steve Ting

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Utah State Office
440 West 200 South, Suite 500
Salt Lake City, UT 84101-1345
http://www.blm.gov/utah

In Reply Refer To:
6500 (UT935)

Dear Reader:

The Utah Greater Sage-Grouse Draft Resource Management Plan Amendment (RMPA) and Draft Environmental Impact Statement (EIS) is available for your review and comment. The Bureau of Land Management (BLM) prepared this document in consultation with cooperating agencies and in accordance with the National Environmental Policy Act of 1969, as amended, the Federal Land Policy and Management Act of 1976, as amended, implementing regulations, the BLM's Land Use Planning Handbook (H-1601-1), and other applicable law and policy.

The planning area includes the BLM Vernal, Moab, Price, Richfield, Kanab, Cedar City, Fillmore, and Salt Lake Field Offices and the Grand Staircase-Escalante National Monument. The planning area covers approximately 48 million acres in 27 of Utah's 29 counties (all except Washington and San Juan). Within this area, approximately 2.5 million acres are mapped as containing greater sage-grouse habitat administered by the BLM, as well as approximately 1.5 million acres of BLM-administered subsurface federal mineral estate beneath non-federal surface ownership or National Forest System lands.

As directed by BLM Planning Regulations, the Management Alignment Alternative has been identified in the Draft EIS as the preferred alternative. Identification of the preferred alternative does not indicate any commitments on the part of the BLM with regard to a final decision. In developing the Proposed RMPA/Final EIS, which is the next phase of the planning process, the decision maker may select various management actions from each of the alternatives analyzed in the Draft RMPA/Draft EIS for the purpose of creating a management strategy that best meets the needs of the resources and values in this area under the BLM multiple use and sustained yield mandate. All actions analyzed in the Draft RMPA/Draft EIS would apply only to lands administered by the BLM.

The BLM encourages the public to review and provide comments on the Draft RMPA/Draft EIS. The Draft RMPA/Draft EIS is available on the project website at: https://go.usa.gov/xQZFW. Hard copies are also available for public review at BLM offices within the planning area.

Public comments will be accepted for ninety (90) calendar days following the Environmental Protection Agency's (EPA) publication of its Notice of Availability in the Federal Register. The

BLM can best utilize your comments and resource information submissions if received within the review period.

Written comments may be submitted as follows (submittal of electronic comments is encouraged):

1) Written comments may be submitted electronically at:
   a) Website: https://go.usa.gov/xQZFW
2) Written comments may also be mailed directly, or delivered to, the BLM at:
   Bureau of Land Management Utah State Office
   Attn: Greater Sage-Grouse Planning Lead
   440 West 200 South, Suite 500
   Salt Lake City, UT 84101-1345

To facilitate analysis of comments and information submitted, we encourage you to submit comments in an electronic format. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Public meetings will be held at various locations around the planning area to provide the public with opportunities to submit comments and seek additional information. The locations, dates, and times of these meetings will be announce at least 15 days prior to the first meeting via a press release and on the project website: https://go.usa.gov/xQZFW

Thank you for your continued interest in the Greater Sage-Grouse RMPA. We appreciate the information and suggestions you contribute to the process.

Sincerely,

Edwin L. Roberson
State Director

Utah Greater Sage-Grouse
Draft Resource Management Plan Amendment and
Draft Environmental Impact Statement

Responsible Agency: United States Department of the Interior
Bureau of Land Management

Abstract: This draft resource management plan (RMP) amendment and draft environmental impact statement (EIS) has been prepared by the United States Department of the Interior (DOI), Bureau of Land Management (BLM) with input from cooperating agencies. The purpose of this RMP amendment (RMPA) is to enhance cooperation with the States by modifying the approach to greater sage-grouse management in existing RMPs to better align with individual state plans and/or conservation measures and DOI and BLM policy. This document is considering amendments to 14 BLM RMPs in Utah. The EIS describes and analyzes two alternatives for managing Greater Sage-Grouse habitat on approximately 2.5 million acres of BLM-administered surface estate and 1.5 million acres of BLM subsurface federal mineral estate. The No-Action Alternative is a continuation of current management; use of public lands and resources would continue to be managed under the current BLM RMPs, as amended in 2015. The Management Alignment Alternative was derived through coordination with the State and cooperating agencies to align with the State conservation plan and to support conservation outcomes for Greater Sage-Grouse. This is the agency's preferred alternative, though this does not constitute a final decision and there is no requirement that the preferred alternative identified in the draft EIS be selected as the agency's decision in the Record of Decision. Major planning issues addressed include Sagebrush Focal Area designations, habitat boundary designations, density and disturbance caps, habitat objectives, energy and minerals, and lands and realty.

Review Period: Comments on the Utah Greater Sage-Grouse Draft Resource Management Plan Amendment and Draft Environmental Impact Statement will be accepted for 90 calendar days following publication of the United States Environmental Protection Agency's Notice of Availability in the *Federal Register*.

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APPENDIX

The appendices below from the 2015 ROD/ARMPA may be modified as part of the Management Alignment Alternative. Those appendices are included here with the same letters as the 2015 ROD/ARMPA. Appendix C, Required Design Features, from the 2015 ROD/ARMPA would be modified to remove required design features for GHMA as GHMA would no longer be a management area under the Management Alignment Alternative. Similarly, Appendix D, Greater Sage-Grouse Monitoring Framework, would also be modified to remove reference to GHMA. Other appendices appearing absent are not modified.

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ARMPA	approved resource management plan amendment
BLM	Bureau of Land Management
BMP	best management practice
BSU	biologically significant unit
CEQ	Council on Environmental Quality
CSU	controlled surface use
DOI	US Department of the Interior
EIS	environmental impact statement
FLMPA	Federal Land Management and Policy Act
GHMA	General Habitat Management Area
LUPA	Land Use Plan Amendment
MZ	management zone
NEPA	National Environmental Policy Act
NSO	no surface occupancy
PHMA	Priority Habitat Management Area
RDF	required design feature
RMP	resource management plan
RMPA	resource management plan amendment
ROD	record of decision
ROW	right of way
SO	Secretarial Order
TL	timing limitation
UDWR	Utah Division of Wildlife Resources
USGS	US Geological Survey
USFWS	US Fish and Wildlife Service

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Executive Summary

ES.1 INTRODUCTION

Greater Sage-Grouse is a state-managed species that is dependent on sagebrush steppe ecosystems. These ecosystems are managed in partnership across the range of the Greater Sage-Grouse by federal, state, and local authorities. Efforts to conserve the species and its habitat date back to the 1950s. Over the past two decades, state wildlife agencies, federal agencies, and many others in the range of the species have been collaborating to conserve Greater Sage-Grouse and its habitats. The United States (US) Department of the Interior (DOI) and the Bureau of Land Management (BLM) have broad responsibilities to manage federal lands and resources for the public benefit. Nearly half of Greater Sage-Grouse habitat is managed by the BLM.

In September 2015, the US Fish and Wildlife Service (USFWS) determined that the Greater Sage-Grouse did not warrant listing under the Endangered Species Act of 1973. In its "not warranted" determination, the USFWS based its decision in part on regulatory certainty from the conservation commitments and management actions in the BLM and US Forest Service (Forest Service) Greater Sage-Grouse land use plan amendments (LUPAs) and revisions, as well as on other private, state, and federal conservation efforts. Since 2015 the BLM, in discussion with partners, recognized that several refinements and policy updates would help strengthen conservation efforts, while providing increased economic opportunity to local communities.

The BLM continues to build upon its commitment to on-the-ground management to promote conservation through close collaboration with State governments, local communities, private landowners, and other stakeholders. **Table ES-1** shows the acres of on-the-ground treatment activity between 2015 and 2017 and planned for 2018, based upon annual budgets allocated by Congress. BLM's accomplishments reflect contributions from programs other than Greater Sage-Grouse, including fuels, riparian, and range management.

Table ES-1
Acres of On-The-Ground Treatment Activity for Fiscal Years 2015 to 2017 and Planned for 2018

Fiscal Year	Conifer Removal	Fuelbreaks	Invasive Species Removal	Habitat Protection	Habitat Restoration	Total
2015	98,876	15,000	63,612	41,003	75,952	294,443
2016	165,963	14,614	66,621	42,305	95,748	385,251
2017	185,032	65,455	124,582	10,428	93,474	479,000
2018[1]	118,384	65,442	68,512	9,240	54,509	316,087

[1]Planned

The BLM is now engaged in a planning effort to further enhance its continued cooperation with western states by ensuring greater consistency between individual state plans and the BLM's multiple-use mission. This executive summary highlights the major components of this planning document and outlines the potential impacts from the proposed management changes. The BLM's efforts seek to improve

management alignment in ways that will increase management flexibility, maintain access to public resources, and promote conservation outcomes.

ES.2 Purpose of and Need for Action

The BLM's purpose and need for this planning action helps define the scope of proposed alternative actions and issues the agency must analyze. In the Federal Land Policy and Management Act (FLPMA), Congress provided the BLM with discretion and authority to manage public lands for multiple use and sustained yield, and declared it the policy of the United States to coordinate the land use planning process with other federal and state plans. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign with the lead role in managing game species, including Greater Sage-Grouse, states play a critical role in conserving and restoring the Greater Sage-Grouse and its habitat.

The purpose of this resource management plan amendment/environmental impact statement (RMPA/EIS) is to enhance cooperation with the states by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and conservation measures and with DOI and BLM policy.

ES.3 Issues and Related Resource Topics Identified Through Scoping

When deciding which issues to address related to the purpose and need, the BLM considers points of disagreement, debate, or dispute regarding an anticipated outcome from a proposed action. Issues are based on anticipated environmental impacts; as such, they can help shape the proposal and alternatives.

The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis. A summary of the scoping process is presented in Potential Amendments to Land Use Plans Regarding Greater Sage-Grouse Conservation Scoping Report (https://goo.gl/FopNgW).

The sections below lay out how issues raised during scoping, as well as related resource topics, are considered in this RMPA/EIS. Generally, they fall into the following categories:

- Issues and related resource topics retained for further consideration in this RMPA/EIS—These were issues raised during scoping for which alternatives were developed to address the issues.
- Clarification of decisions in the 2015 ROD/ARMPA—These are decisions or frameworks in the 2015 ROD/ARMPA that require clarification as to their application or implementation. No new analysis is required, as the intentions behind the decisions were analyzed in the 2015 Final EIS.
- Issues and resource topics not carried forward for additional consideration or analysis are those brought up during scoping that were not carried forward in this RMPA/EIS—While some of these issues are considered in this RMPA/EIS, they do not require additional analysis because they were analyzed in the 2015 Final EIS. Others are not carried forward in this RMPA/EIS because they do not further the purpose of aligning with the State's conservation plan. Similar to issues, there are resource topics that are not retained for further analysis. This is because either they are not affected by the changes proposed in **Chapter 2** or because the impact was analyzed in the 2015 Final EIS.

ES.3.1 Issues and Related Resource Topics Retained for Further Consideration in this RMPA/EIS

Based on the issues identified in **Table ES-2**, below, the resource topics that could be affected are as follows: Greater Sage-Grouse, air quality, soil resources, water resources, vegetation (including noxious weeds and riparian and wetlands), other special status species, fish and wildlife, wild horses and burros, cultural resources, visual resources, wildland fire management, lands with wilderness characteristics (not managed for their protection), livestock grazing/rangeland management, recreation, comprehensive travel and transportation management, lands and realty, renewable energy, leasable minerals (fluid, nonenergy, coal, oil shale, and tar sands), locatable minerals, mineral materials, social and economic conditions, and tribal interests. Therefore, these resource topics are carried forward for additional consideration and analysis.

Table ES-2 identifies the corresponding resource topics to which the issues relate. The level of detail in the description of each resource topic and the impacts from implementing any of the alternatives also are described in **Chapters 3** and **4**.

Table ES-2
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Sagebrush Focal Area Designations/Withdrawal Recommendation • Do SFAs contribute to achieving conservation outcomes? • Relevance of this habitat designation in the absence of a mineral withdrawal? • Does the designation and associated management align with the State's plan/strategy?	Greater Sage-Grouse, soil, water, vegetation, other special status species, fish and wildlife, cultural, wildland fire management, livestock grazing, fluid mineral leasing, locatable minerals, social and economic considerations, and tribal interests
Administering Disturbance and Density Caps • How should non-habitat portions of PHMA be accounted for when administering the disturbance cap? • How can local data on how Greater Sage-Grouse use the landscape in Utah inform the disturbance cap? • Can the disturbance and density caps be administered to incentivize avoidance of important Greater Sage-Grouse habitat without blanket constraints on energy and mineral development?	All, except for air quality, renewable energy, and oil shale and tar sands
Modifying Habitat Objectives • Are the objectives applicable to the ecological conditions and potential for areas throughout Utah? • Do the indicators align with the site-specific needs of the species? • How will local science be incorporated, recognizing differing ecological conditions and potential throughout the planning area?	Greater Sage-Grouse, vegetation, other special status species, fish and wildlife, wild horses and burros, and livestock grazing
Waivers, Exceptions, and Modifications for NSO Stipulations • Can development occur in portions of PHMA without impacting Greater Sage-Grouse and its habitat? • Change in requirements for the USFWS to approve waivers, exceptions, or modifications • Impact of oil and gas leasing on achieving Greater Sage-Grouse conservation outcomes	Greater Sage-Grouse, air, soil, water, vegetation, other special status species, fish and wildlife, wild horses and burros, cultural, visual resources, wildland fire management, wilderness characteristics, fluid mineral leasing, social and economic considerations, and tribal interests

Table ES-2
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
General Habitat Management Areas in Utah • What management of Greater Sage-Grouse habitat outside of PHMA is necessary to balance conservation outcomes for Greater Sage-Grouse with local economic development opportunities? • Are any habitat designations warranted to achieve conservation outcomes beyond the State of Utah's 'Sage-Grouse Management Area' designation?	All, except wild horses and burros, livestock grazing, recreation, and coal
Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA • Is management to protect Greater Sage-Grouse necessary in areas of non-habitat within PHMA? • Can conservation of Greater Sage-Grouse occur while considering opportunities for development within PHMA?	All, except Greater Sage-Grouse, livestock grazing, travel and transportation, and coal
Adaptive Management • How can adaptive management responses better focus on the factors causing the declines? • Identify the process for changing management if species has recovered from an action (or actions) that tripped a trigger • Identify a process for potentially removing an area from PHMA if recovery efforts fail	All
Prioritization of Mineral Leasing • Does the objective for prioritizing fluid mineral leasing outside PHMA and GHMA align with the state's Greater Sage-Grouse conservation strategy?	Greater Sage-Grouse, vegetation, other special status species, fish and wildlife
Land Disposal and Exchanges • Is retaining all lands managed as PHMA and GHMA always the only means of conserving Greater Sage-Grouse? • Can site-specific conditions surrounding potential land disposals or exchanges affect whether retention of public lands is the best management approach? • Increase flexibility in considering the benefit to disposing of Greater Sage-Grouse habitat where the public would benefit from such a transaction	Greater Sage-Grouse, vegetation, other special status species, fish and wildlife, wildland fire management, wilderness characteristics, land use and realty, oil shale and tar sands, and social and economic conditions
Managing Habitat to Manage Predation • Are there vegetation management measures that would reduce the threat of predation to Greater Sage-Grouse?	Greater Sage-Grouse, vegetation, special status species, and fish and wildlife
Burial of Transmission Lines • Is burial of every proposed transmission line or renewal, amendment, or reauthorization of existing transmission lines the best conservation approach for Greater Sage-Grouse? • Is prioritizing burial of transmission lines consistent with the state's conservation strategy?	Greater Sage-Grouse, soil resources, vegetation, other special status species, fish and wildlife, cultural resources, visual resources, wildland fire management, land use and realty, renewable energy, social and economic conditions, and tribal interests

ES.3.2 Clarification of Planning Decisions in the 2015 Approved Resource Management Plan Amendment (ARMPA)

The following issues with existing planning decisions were raised during scoping. These issues require clarification to the ARMPA language but, because they are clarifications and do not change management as intended or analyzed in the 2015 Final EIS, they do not require new analysis. The clarifying language for these planning decisions is displayed in this planning document to communicate how these issues are being addressed.

Modifying Habitat Management Area Boundaries

The PHMA boundaries were initially designated to align with the areas mapped as "habitat" within the State's 2013 SGMA; however, the State's SGMA boundaries were intended to be adjusted based on site-specific data. Similarly, the PHMA boundaries were intended to be able to be adjusted (increased or decreased) based on site-specific data to adequately capture Greater Sage-Grouse habitat needs to the corresponding Greater Sage-Grouse population, based on best available site-specific science and monitoring data. This was clearly described in language in the 2015 Final EIS, Section 2.7.4.

Modifying Mitigation Standard

Since completion of the BLM's 2015 ARMPAs, the State of Utah has developed a Compensatory Mitigation Program to offset impacts on Greater Sage-Grouse from potential development. The current language in the ARMPA does not align with the State's program. Adjusting language for the mitigation standard for Greater Sage-Grouse to match that already contained in the BLM's policies for sensitive species improves alignment with the State's Greater Sage-Grouse management strategies and its Compensatory Mitigation Program while retaining the principles present in the ARMPA. As the principles are consistent with the current ARMPA, the adjustment does not require new analysis.

Clarifying Application of Lek Buffers

During scoping, an issue was raised questioning whether the lek buffers identified in the 2015 ARMPA were tools to analyze and reduce impacts or to preclude activities in the buffer area. The BLM's 2015 ARMPA provided direction to apply lek buffer-distances; however, the appendix describing how to apply the buffers is not consistent on whether they are a tool to "evaluate impacts to leks" or to "relocate [projects] outside the applicable lek buffer-distances." This process clarifies the inconsistency by aligning the buffer strategy with the BLM Utah's PHMA strategy, which is consistent with the State of Utah's management approach. Like the state's SGMA, the BLM's PHMA was mapped to capture all seasonal habitats used by priority populations of Greater Sage-Grouse in the State, not just focus on breeding or nesting areas that are addressed by lek buffers. Because the clarifications in how lek buffers are applied are consistent with the strategies already contained in the 2015 ARMPA and analyzed in the 2015 Final EIS, no additional analysis is necessary.

The 2015 ARMPA appendix also includes language that "justifiable departures to decrease or increase from [the] distances, based on local data [and] best available science…may be appropriate for determining activity impacts." Since completion of the 2015 ARMPA, Utah State University has analyzed the relationships between power lines and nesting and brood-rearing hen data from Utah. Based on their analysis, the tall structures buffer is being decreased from 2.0 miles to 1.7 miles, consistent with the language already in the appendix. Because such adjustments were already provided for in the appendix, no additional analysis is necessary.

Clarifying Grazing Systems and Prioritization of Grazing Permits

The 2015 ARMPA includes several management actions in the livestock grazing section that duplicate existing agency regulations, policies, or management actions in other sections of the ARMPA. As such, these actions would continue to be implemented whether or not they appear in the land use plan. Additionally, these actions tend to address management on livestock grazing in general, rather than focusing on the threat to Greater Sage-Grouse from improper livestock grazing, which is the focus of the State's management and strategies. Because removing these actions does not change whether they are implemented via regulation, policy, or other management action, no new analysis is required.

Clarifying Management of Water Developments for Livestock

The second sentence of management action MA-LG-10 in the 2015 ARMPA could be interpreted as potentially impinging on the State's authority to manage water rights; however, the second sentence merely repeats the principle of the first sentence of this action with more specific details to a type of vegetation condition. So long as the first sentence is met, the second sentence's removal does not change any impacts, and increases alignment with the State's plans and strategies.

Clarifying the Role of the State of Utah and Counties with Respect to Travel Management Planning

An issue was raised in scoping to clarify the role of governmental parties in subsequent travel management efforts. Clarification of who needs to be included in coordination for implementation-level travel management planning does not have any on-the-ground impact, and therefore does not require new analysis.

Clarifying the Role of the BLM, State of Utah, and Counties with Respect to Predator Control

An issue was raised in scoping to clarify the role of governmental parties in predator control. Successful predator management requires coordination across a wide variety of state, county, and federal agencies with differing jurisdictions. The importance of such coordination was addressed in this RMPA/EIS as a clarification of language already present in the 2015 ARMPA. Clarification of the importance of such coordination does not have any on-the-ground impact, and therefore does not require new analysis.

Clarifying Management of Surface Coal Mining

Issues were raised during scoping regarding surface mining of coal in Greater Sage-Grouse habitat. Management Action MR-18 in the 2015 ARMPA included language that addressed this issue, but it became apparent through scoping that the language was not sufficiently clear. To address this confusion the language was modified to clarify the intent of the 2015 ARMPA. As this does not include a change in the actual decision, but merely a clarification to align with the intent of the 2015 ARMPA, no new impacts need to be analyzed.

Decisions that Require Analysis of Specific Alternatives during Implementation

An issue from scoping noted that several of the ARMPA actions did nothing more than direct analysis of specific alternatives during environmental review of site-level projects. Nothing in the State of Utah's plan directs blanket analysis of a given course of action without consideration of the issues and site-specific resource conditions. As such, requirements to analyze specific alternatives regardless of site-specific issues do not align with the State's plan or strategies. Because there is no impact associated with simply "considering" a future unknown action, there is no corresponding impact as a result of removing

it from required consideration. Therefore, no new impacts need to be analyzed. Any actual impacts of a given "considered" action would be determined during the site-specific NEPA effort and be based on the specific conditions in the given planning area.

ES.4 Issues and Resource Topics not Carried Forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)

Issues and Related Resource Topics not Carried Forward for Additional Analysis

The following issues were raised during scoping and are not carried forward for a variety of reasons. For example, population-based management is not carried forward for detailed analysis because the BLM does not manage species populations; that authority that falls under the jurisdiction of the State of Utah and implemented by the Division of Wildlife Resources.

Other issues were analyzed in the 2015 Final EIS, and no significant new information related to these issues has emerged since that time. Therefore, the following issues do not require additional analysis in this RMPA/EIS:

- Restrictions on rights-of-way (ROWs) and infrastructure
- ROW avoidance in PHMA and GHMA
- Varying stipulations applied to oil, gas, and, geothermal development
- Impacts of NSO stipulations on Greater Sage-Grouse habitat on land not administered by the BLM
- Numerical noise limitations in PHMA
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Required design features (RDFs)
- Vegetation treatments and wildfire response
- Habitat and plan effectiveness monitoring using tools such as the habitat assessment framework

The BLM evaluated other issues as part of the 2015 Final EIS. For the same reasons they were dismissed in the 2015 Final EIS, they were not carried forward for detailed analysis in this RMPA/EIS (see Section 1.6.3 in the 2015 Final EIS):

- Greater Sage-Grouse hunting
- Predator control
- Military overflights of PHMA/GHMA

Resource Topics Not Carried Forward for Additional Analysis

The resource topics below are dismissed from detailed analysis. While these resource topics may have impacts related to Greater Sage-Grouse conservation that were analyzed in the 2015 Final EIS, they are dismissed from detailed analysis because they have no potentially significant impacts from actions proposed in this RMPA/EIS:

- Geology
- Paleontological resources

- Special designations (i.e., areas of critical environmental concern, wilderness, wilderness study areas, wild and scenic rivers, and national trails)
- Lands with wilderness characteristics managed for their protection (natural areas)

ES.5 ALTERNATIVES CONSIDERED

Alternatives development and analysis is the heart of an EIS. The alternatives considered in this document address all the issues brought forward by the public and considered by BLM. The comparative analysis between alternatives establishes a framework for decision makers to understand important trade-offs and identify the most effective way to meet the purpose and need and BLM's multiple use mission. The alternatives analysis can support the BLM in adapting its management when information and circumstances change.

ES.5.1 No-Action Alternative

Under the No-Action Alternative, the BLM would not change the management actions from the 2015 Utah Greater Sage-Grouse Approve Resource Management Plan Amendment. Greater Sage-Grouse habitat would continue to be managed under current management direction. Goals and objectives for BLM-administered lands and federal mineral estate would not change. Allowable uses and restrictions pertaining to such activities as mineral leasing and development, lands and realty, and livestock grazing would also remain the same. This alternative includes the designation of Sagebrush Focal Areas (SFAs), PHMA, and GHMA, with corresponding management for each type of area.

ES.5.2 Management Alignment Alternative (Preferred Alternative)

This alternative was developed through coordination with the State of Utah and cooperating agencies to increase alignment with the State of Utah's Greater Sage-Grouse conservation plan and strategies and to support conservation outcomes for Greater Sage-Grouse.

The BLM continues to build upon the 2015 planning effort as envisioned in SO 3353 by collaborating with states to improve compatibility between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple use mission. This enhanced cooperation between the BLM and the Utah Governor's office would lead to improved management and coordination with states across the range of Greater Sage-Grouse in Utah. At the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS proposes a change to compensatory mitigation by modifying the net conservation gain standard that the BLM incorporated into its plans in 2015. The DOI and the BLM have also modified their mitigation policies since the 2015 plans were finalized. The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans.

The Management Alignment Alternative focuses management on PHMA to protect the habitats that support over 95 percent of Greater Sage-Grouse populations in Utah, while removing the designation and management of GHMA. Additionally, PHMA management is adjusted to maintain avoidance protections while allowing site-specific adjustments to account for the unique nature of habitat types and distribution throughout Utah.

Consistent with the notice of Cancellation, which canceled the BLM's application to withdraw SFA from locatable mineral entry (82 *Federal Register* 195, October 11, 2017, p. 47248), this alternative would remove the recommendation for withdrawal. The effects of such action are included in **Chapter 4**.

ES.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This section summarizes and compares environmental consequences anticipated from implementing the No-Action Alternative and the Management Alignment Alternative. This table groups the impact summaries into three main categories: Greater Sage-Grouse, resources, resource uses, Social and Economic Conditions, and Tribal Interests. A detailed description of environmental consequences is included in **Chapter 4**, and a description of changes between alternatives is found in **Chapter 2**, **Table 2-1**.

No-Action Alternative	Management Alignment Alternative
Greater Sage-Grouse	
Minerals and lands allocations would avoid most impacts on Greater Sage-Grouse and their habitat in PHMA. Impacts from developments not avoided entirely would be minimized by the application of measures such as a 3 percent disturbance cap, a cap on mineral and energy facilities, required design features, noise and tall structure requirements, seasonal considerations, and prioritizing development in areas that would have the least impacts. Any remaining impacts would be compensated for by requiring that projects demonstrate a net conservation gain to Greater Sage-Grouse. Reflective of its lower conservation value, GHMA would not include additional allocations specific to Greater Sage-Grouse protection compared to what preceded the 2015 planning effort. However, it would include some minimization measures (buffers and required design features). Additionally, any projects developed in GHMA would still need to demonstrate a net conservation gain for Greater Sage-Grouse. Even given these minimization measures, it is anticipated that the declining trends seen to date would continue. Habitat within PHMA and GHMA would be managed to provide for the needs of Greater Sage-Grouse.	All of the minerals and lands allocations from the No-Action Alternative would remain in place, avoiding most impacts on Greater Sage-Grouse and their habitat within PHMA. The minimization measures would also be retained in the Management Alignment Alternative to decrease the effect of impacts from activities that do not avoid PHMA. In both the avoidance and minimization measures, the Management Alignment Alternative would allow site-specific adjustments to account for the unique nature of Greater Sage-Grouse habitat types and distribution throughout Utah. That includes allowing the disturbance and density caps to be exceeded, as well as allowing for development in PHMA if it occurs in non-habitat areas. This could result in a site-specific loss of Greater Sage-Grouse habitat and displacement from the area of development by local populations. Requiring that impacts within PHMA improve Greater Sage-Grouse habitat would work to offset these impacts. Given the requirement to avoid indirect impacts on habitat within PHMA or locate developments in non-habitat portions of PHMA, these impacts are not anticipated to affect achievement of Greater Sage-Grouse management goals. Areas that were formerly identified as GHMA would no longer be managed as such, and corresponding management would be removed. This would maintain and likely increase the declining trends in Greater Sage-Grouse populations and habitat.

No-Action Alternative	Management Alignment Alternative
Resources	
Summarizes impacts on resources, including air quality, soil resources, water resources, vegetation (including noxious weeds and riparian and wetlands), other special status species, fish and wildlife, wild horses and burros, cultural resources, visual resources, wildland fire management, and lands with wilderness characteristics (not managed for their protection).	
Protections applied to PHMA and GHMA would generally benefit resources that correspond to Greater Sage-Grouse habitat by either avoiding development or minimizing its effect. These measures would generally keep the existing resources in place, with minimal effects. Managing Greater Sage-Grouse habitat to achieve habitat objectives and maintain or expand the acres that provide for Greater Sage-Grouse habitat would maintain the condition and functionality for most resources. Managing habitat in this fashion would maintain normal wildland fire trends.	Changes in management could result in a change in the potential for development to occur in PHMA or former GHMA areas. This could include a change in where the development could occur (e.g., in non-habitat portions of PHMA, in former GHMA area, or anywhere in PHMA due to exceedances in the disturbance or density cap). The change could also include the rate at which it occurs (development in GHMA occurring more quickly under the Management Alignment Alternative compared to the No-Action Alternative due to removal of some minimization measures and compensation requirements). In all of these instances, the impacts on resources would be substantially similar to the impacts from the No-Action Alternative.
Resource Uses	
Summarizes impacts on resources uses, including livestock grazing/rangeland management, recreation, comprehensive travel and transportation management, lands and realty, renewable energy, leasable minerals (fluid, non-energy, coal, oil shale and tar sands), locatable minerals, and mineral materials.	
Allocations could preclude development of some mineral and renewable energy resources. New non-energy leasable mines in new areas of PHMA would be precluded, as would new mineral material sites. However, the most common mineral material site – free-use sites – would continue to be allowed. No surface occupancy stipulations could limit interest in leasing or development in PHMA, though areas with high mineral potential do not generally align with PHMA. In addition to these allocations, other measures to minimize impacts on Greater Sage-Grouse and its habitat (seasonal limitations, noise and tall structure restrictions, net conservation gain requirements) would not preclude development in PHMA or GHMA, but could affect the economic feasibility of some mineral developments and lands projects by potentially increased costs and development delays. Application of the 3 percent disturbance cap and the energy and minerals density cap could preclude new developments, if the cap limits are met. PHMA and GHMA are available for livestock grazing. Conservation measures that limit loss of Greater Sage-Grouse habitat (e.g., allocations, 3 percent disturbance cap in PHMA, lek buffers) could result in decreased disturbance and loss of forage, though given estimated anticipated levels of disturbance, this effect would be minimal. Requiring mineral projects to achieve a net	Impacts from allocations would generally be the same as the No-Action Alternative, except that adding waivers, exceptions, and modifications to the No Surface Occupancy fluid minerals stipulation would increase flexibility for leaseholders to find areas within PHMA where development does not result in impacts on Greater Sage-Grouse. Allowing development in non-habitat portions of PHMA would increase development opportunities, but generally for smaller types of disturbances and developments to avoid impacts on adjacent areas of habitat. This provision could also potentially open up additional opportunities for siting of energy and mining facilities and small rights-of-way. Allowing projects to exceed the 3 percent disturbance cap and minerals/energy density caps could increase opportunities for development within PHMA if an area was close to meeting one of the caps, though there would be an increase in mitigation costs associated with exceeding the caps. Removal of GHMA and its management from the 2015 amendment could reduce costs of exploration and development of multiple types of energy, mineral, and other land use resources. This could result in an increase in rates of development, though this result is anticipated to be marginal.

No-Action Alternative	Management Alignment Alternative
conservation gain could improve rangeland conditions by managing areas of conifer encroachment for Greater Sage-Grouse. Recreation use and development would continue, though siting and design of some facilities could change to avoid impacts on PHMA.	All lands currently available for livestock grazing would continue to be available. Though there is a potential for more development, mitigation requirements would replace lost forage resources. In former GHMA, however, mitigation for development would occur in PHMA, which could result in a long-term decrease in available forage. Impacts on recreation are not different from the No-Action Alternative.
Social and Economic Conditions	
As noted in the 2015 Final EIS, impact on employment and earnings would be a reduction of an estimated 0.1 percent of employment and earnings when compared to pre-2015 levels.	Increasing flexibility by allowing exceedances to the disturbance and density caps could result in increased economic activity and, possibly, positive economic impacts at the local, regional, state, and/or national level. Similarly, allowing for development in non-habitat portions of PHMA could potentially increase development activities in the future and, in turn, could result in positive economic impacts. This provision could also potentially open up additional opportunities for siting of energy and/or mining facilities, resulting in positive changes in economic indicators. Removing GHMA and its management could reduce costs of exploration and development of multiple types of energy, mineral, and other land use resources in these areas, although this result would be expected to be marginal. Changes in the disposal limitations could possibly expand economic opportunities in the affected location. The specific economic impact in each case would depend on the type of development that would occur as a result of the change in land ownership.
Tribal Interests	
Impacts could be from development (e.g., mineral developments, transmission lines, road construction, etc.), conservation actions (e.g., habitat improvement or landscape reclamation, etc.), or future implementation actions. Both alternatives provide for appropriate tribal governments to consult on a case-by-case basis on undertakings on BLM-administered lands that could affect Native American concerns. The BLM would continue to identify, protect, and preserve tribal assets, treaty rights, sacred/religious sites, or special use areas through site- and project-specific modification or mitigation on a project-by-project consultation basis.	

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Chapter 1. Purpose of and Need for Action

1.1 INTRODUCTION

Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe ecosystems. These ecosystems are managed in partnership across its range by federal, state, tribal, local, and private authorities and input. State agencies responsible for fish and wildlife management possess broad responsibility for protecting and managing fish, wildlife, and plants within their borders, except where preempted by federal law. Similarly, the DOI has broad responsibilities to manage federal lands and resources for the public's benefit. On reservations, Native American tribes manage wildlife and their associated habitat. Approximately half of Greater Sage-Grouse habitat is managed by the Bureau of Land Management (BLM) and United States Forest Service (Forest Service).

State agencies are at the forefront of efforts to maintain healthy fish and wildlife populations and to conserve at-risk species. State-led efforts to conserve Greater Sage-Grouse and its habitat date back to the 1950s. For the past two decades, state wildlife agencies, federal agencies, state governments, non-governmental organizations, and many others in the range of the species have been collaborating to conserve Greater Sage-Grouse and its habitat.

In 2010, the United States Fish and Wildlife Service (USFWS) determined that listing the Greater Sage-Grouse under the Endangered Species Act of 1973 was "warranted but precluded" due to higher listing priority species. In part, the USFWS's 2010 determination was based on a review of the five ESA factors, wherein the USFWS concluded that a lack of regulatory mechanisms was a threat to the Greater Sage-Grouse. In response, the BLM, in coordination with the United States Department of Agriculture, developed a management strategy that included targeted Greater Sage-Grouse management actions. In September 2015, the agencies adopted land use plan amendments (LUPAs) and revisions to 98 BLM and Forest Service land use plans (LUPs) across ten western states. These LUPAs addressed, in part, threats to the Greater Sage-Grouse and its habitat. The amended LUPs govern the management of 67 million acres of Greater Sage-Grouse habitat on federally administered lands.

In September 2015, the USFWS determined that the Greater Sage-Grouse did not warrant listing under the Endangered Species Act. The USFWS attributed its 2010 "warranted but precluded" determination primarily to "inadequate regulatory mechanisms." In its 2015 conclusion of "not warranted," the USFWS based its decision in part on regulatory certainty from the conservation commitments and management actions in the federal land use plan amendments (LUPAs) and revisions, as well as on other private, state, and federal conservation efforts.

The BLM is currently implementing the 2015 Greater Sage-Grouse plans. The plans recommended that SFAs be proposed for withdrawal; however, this proposed withdrawal was cancelled on October 11, 2017, pursuant to *82 Federal Register 47248*.

On March 29, 2017, the Secretary of the Interior (Secretary) issued Secretarial Order (SO) 3349 "American Energy Independence." It ordered agencies to reexamine practices "to better balance conservation strategies and policies with the equally legitimate need of creating jobs for hard-working American families."

On June 7, 2017, the Secretary issued SO 3353 for the purpose of enhancing cooperation among 11 western states and the BLM in managing and conserving Greater Sage-Grouse. SO 3353 directed an Interior Review Team, consisting of the BLM, the USFWS, and United States Geological Survey (USGS), to coordinate with the Sage-grouse Task Force, which is comprised of representatives of the governors of each of the 11 states. They also were directed to review the 2015 Greater Sage-Grouse plans and associated policies to identify provisions that may require modification to make the plans more consistent with the individual state plans and better balance the BLM's multiple-use mission as directed by SO 3349.

On August 4, 2017, the Interior Review Team submitted its Report in Response to Secretarial Order 3353. In this report the team recommended modifying the Greater Sage-Grouse plans and associated policies to better align with the individual state plans and to meet the purposes of SO 3353. In this report, the team recommended modifying the Greater Sage-Grouse plans and associated policies to better align with the individual state plans. On August 4, 2017, the Secretary issued a memorandum to the Deputy Secretary directing the BLM to implement the recommendations found in the report.

On October 11, 2017, the BLM published the Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environment Impact Statements or Environmental Assessments in the *Federal Register* (*82 Federal Register 47248*).

During the public scoping period, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues should be considered, and if plans should be completed at the state level rather than at the national level. In addition, the BLM recognizes that Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitat managed in partnership by federal, state, tribal, and local authorities. Input from state governors would weigh heavily when the BLM considers what management changes should be analyzed while ensuring consistency with the BLM's multiple-use mission and state and local plans, to the maximum extent consistent with the Federal Land Policy and Management Act (FLPMA) and the purposes, policies, and programs of federal laws and regulations applicable to public lands.

1.2 PURPOSE OF AND NEED FOR ACTION

In FLPMA, Congress provided the BLM with discretion and authority to manage public lands for multiple use and sustained yield, and declared it the policy of the United States to coordinate the land use planning process with other federal and state plans. Further, FLPMA specifically provides that it neither enlarges nor diminishes the authority of the states in managing fish and wildlife. As the sovereign with the lead role in managing game species, including Greater Sage-Grouse, states (and on reservations, tribes) play a critical role in conserving and restoring the Greater Sage-Grouse and its habitat.

The purpose of this land use plan amendment is to enhance cooperation with the states, and where applicable tribes, by modifying the approach to Greater Sage-Grouse management in existing land use plans to better align with individual state plans and/or conservation measures and DOI and BLM policy.

1.3 PLANNING AREA AND CURRENT MANAGEMENT

The planning area includes all of the State of Utah, regardless of jurisdiction, except lands in Washington and San Juan Counties (see **Figure 1-1**, Utah Planning Area). **Table 1-1**, Land Management in the Utah Planning Area, identifies surface acres administered by federal agencies, state, tribal, and local governments and lands that are privately owned in the planning area. Greater Sage-Grouse habitat comprises only a portion of the planning area. This RMPA/EIS does not address management for lands outside Greater Sage-Grouse habitat.

Table 1-1
Land Management in the Utah Planning Area

Surface Land Management	Total Surface Land Management Acres
BLM	20,367,500
Forest Service	7,390,200
Private	10,811,700
Indian reservation	1,141,000
USFWS	99,800
State	5,166,500
National Park Service	1,365,600
Bureau of Reclamation	3,900
Department of Defense	1,812,500
Total acres	**48,158,700**

Source: BLM GIS 2015

The RMPA/EIS decision area includes BLM-administered lands in Greater Sage-Grouse habitat management areas, including surface and split-estate lands with BLM-administered subsurface mineral rights. All decisions apply only to BLM-administered lands, including split-estate lands within Greater Sage-Grouse habitat management areas (the decision area).

The Greater Sage-Grouse management areas represent the local ranges of one or more Greater Sage-Grouse populations. These areas are non-contiguous, meaning they are often separated by natural geographic features/barriers or human development (**Figure 1-1**). In the 2015 Greater Sage-Grouse plan amendments, the decision area is further divided into priority habitat management areas (PHMA) and general habitat management areas (GHMA). PHMA and GHMA are defined as follows:

- PHMA—Areas prioritized for managing Greater Sage-Grouse populations (management is only applicable to actions on BLM-administered lands). These areas include high-quality habitat, and may also include areas with poor or potential habitat, as well as nonhabitat. PHMA largely coincides with the State of Utah's Sage-Grouse management areas (SGMA). Within the SGMA, the State identified areas of habitat, nonhabitat, and opportunity areas, though management was focused on the habitat. In most instances, the PHMA align with the SGMA mapped as "habitat." PHMA include all seasonal habitat areas for the corresponding Greater Sage-Grouse populations, including breeding, late brood-rearing, winter areas, and migration or connectivity corridors.
- GHMA—Areas with mapped occupied habitat outside of PHMA (management is only applicable to actions on BLM-administered lands). The State of Utah's plan does not include maps or specific management for occupied habitat outside their SGMA.

The BLM's 2015 Greater Sage-Grouse plan amendments designated PHMA and GHMA as follows: (see **Table 1-2**).

Table 1-2
Acres of PHMA and GHMA in the Decision Area for the RMPA

	PHMA	GHMA
BLM-administered surface	2,079,900	440,100
BLM-administered mineral estate*	1,319,400	178,000

Source: BLM GIS 2015

*Acreage where the surface and mineral estates are owned or administered by separate entities. These acres show where the surface estate is not BLM administered (e.g., private, state, tribal, and United States Department of Agriculture, Forest Service) but that have a federal mineral estate administered by the BLM.

It is important to note that the State of Utah's maps used for occupied habitat are broad in nature, and were developed to identify the general areas of potential habitat where Greater Sage-Grouse may be found. The state's general maps, and by extension the BLM's PHMA maps, were developed with the intent that as decision-making in the mapped areas moves from broad considerations to application at more specific areas, information that is correspondingly more detailed should be reviewed to determine if a given area actually includes occupied Greater Sage-Grouse habitat.

There are 14 land use plans being considered for amendment as part of this process:

- Vernal Resource Management Plan (2008)
- Price Resource Management Plan (2008)
- Richfield Resource Management Plan (2008)
- Kanab Resource Management Plan (2008)
- Grand Staircase-Escalante National Monument Management Plan (2000)
- Cedar/Beaver/Garfield/Antimony Resource Management Plan (1986)
- Pinyon Management Framework Plan (1978)
- Warm Springs Resource Management Plan (1987)
- House Range Resource Management Plan (1987)
- Pony Express Resource Management Plan (1990)
- Box Elder Resource Management Plan (1986)
- Randolph Management Framework Plan (1980)
- Park City Management Framework Plan (1975)
- Salt Lake District Isolated Tracts Planning Analysis (1985)

1.4 PLANNING CRITERIA

Planning criteria establish constraints, guidelines, and standards for the planning process and help the BLM define the scope of planning and analysis. The following criteria are based on the standards prescribed by applicable laws and regulations; agency guidance; results of consultation and coordination

with the public and other federal, state, and local agencies; analysis pertinent to the planning area; and professional judgment.

The BLM has identified the following planning criteria:

- The BLM will comply with all current laws, regulations, policies, and guidance related to public lands management and implementing NEPA on BLM-administered lands.
- On public lands, Greater Sage-Grouse is a state-managed species that depends on sagebrush steppe habitat managed in partnership by federal, state, and local authorities. In making management determinations on BLM-administered lands, the BLM will use, to the fullest extent practicable, state game and fish agencies' Greater Sage-Grouse data and expertise.
- Lands addressed in the RMPA/EIS will be BLM-administered land in Greater Sage-Grouse habitat, including surface and split-estate lands with federal subsurface mineral rights. Any decisions in the RMPA/EIS will apply only to BLM-administered lands.
- This RMPA/EIS will comply with orders of the Secretary, including SO 3353 (Greater Sage-Grouse Conservation and Cooperation with Western States), which strives for compatibility with state conservation plans.
- This RMPA/EIS will incorporate, as appropriate, information in a USGS report that identified and annotated Greater Sage-Grouse science published since January 2015 (Carter et al. 2018) and a report that synthesized and outlined the potential management implications of this new science (Hanser et al. 2018).
- The RMPA will incorporate, as appropriate, local- and state-based science, data, monitoring information, and associated analyses and products.
- This RMPA/EIS will comply with BLM Manual 6840, Special Status Species Management.
- This RMPA/EIS will recognize valid existing rights.
- All activities and uses in Greater Sage-Grouse habitat will be managed to achieve land health standards.
- This RMPA/EIS will not amend more restrictive land use allocations or decisions for other resources under existing LUPs, such as wilderness study areas, areas of critical environmental concern, cultural resources, and riparian areas.

1.5 Issues and Related Resource Topics Identified Through Scoping

When deciding which issues to address related to the purpose and need, the BLM considers points of disagreement, debate, or dispute regarding an anticipated outcome from a proposed action. Issues are based on anticipated environmental impacts; as such, issues can help shape the proposal and alternatives. The BLM used internal, agency, and public scoping to identify issues to consider in the environmental analysis. A summary of the scoping process is presented in Potential Amendments to Land Use Plans Regarding Greater Sage-Grouse Conservation Scoping Report (https://goo.gl/FopNgW). When determining whether to retain an issue for more detailed analysis in this RMPA/EIS, the interdisciplinary team considered, among other things, the following:

- The environmental impacts associated with the issue and the threats to species and habitat associated with the issue are central, or of critical importance, to developing a Greater Sage-Grouse management plan.

- A detailed analysis of environmental impacts related to the issue is necessary to make a reasoned choice between alternatives.
- The environmental impacts associated with the issue are a significant point of contention among the public and other agencies.
- There are potentially significant impacts on resources associated with the issue.

Ultimately, it is important for decision-makers and the public to understand the impacts that each of the alternatives would have on specific resources; therefore, the BLM uses resource topics as a heading to indicate which resources would be affected by a management change. Importantly, resource topics will help organize the discussions of the affected environment (**Chapter 3**) and environmental consequences (**Chapter 4**).

The sections below outline how issues raised during scoping, as well as related resource topics, are considered in this RMPA/EIS. Generally, they fall into the following categories:

- Issues and related resource topics retained for further consideration in this RMPA/EIS—These were issues raised during scoping for which alternatives were developed to address the issues. In some cases, the resolution in the alternatives were previously analyzed in the 2015 Final EIS. In other cases, additional analysis is needed in this RMPA/EIS. Because the issues are analyzed under resource topics in 2015, the resource topics corresponding with those retained for further analysis are also considered in this RMPA/EIS. Just like issues, they may have been analyzed in the 2015 Final EIS for those decisions being included in this RMPA/EIS.
- Clarification of decisions in the 2015 Approved Resource Management Plan Amendments (ARMPA)—These are decisions or frameworks in the 2015 ARMPA that require clarification as to their application or implementation. No new analysis is required, as the intentions behind the decisions were analyzed in the 2015 Final EIS.
- Issues and resource topics not carried forward for additional consideration or analysis are those brought up during scoping that were not carried forward in this RMPA/EIS—While some of these issues are considered in this RMPA/EIS, they do not require additional analysis because they were analyzed in the 2015 Final EIS. Others are not carried forward in this RMPA/EIS because they do not further the purpose of aligning with the State's conservation plan. Similar to issues, there are resource topics that are not retained for further analysis. This is because either they are not affected by the changes proposed in **Chapter 2** or because the impact was analyzed in the 2015 Final EIS.

1.5.1 Issues and Related Resource Topics Retained for Further Consideration in this RMPA/EIS

Based on the issues identified in **Table 1-3**, below, the resource topics that could be affected are as follows: Greater Sage-Grouse, air quality, soil resources, water resources, vegetation (including noxious weeds and riparian and wetlands), other special status species, fish and wildlife, wild horses and burros, cultural resources, visual resources, wildland fire management, lands with wilderness characteristics (not managed for their protection), livestock grazing/rangeland management, recreation, comprehensive travel and transportation management, lands and realty, renewable energy, leasable minerals (fluid, nonenergy, coal, oil shale, and tar sands), locatable minerals, mineral materials, social and economic

conditions, and tribal interests. Therefore, these resource topics are carried forward for additional consideration and analysis.

Table 1-3 identifies the issues and the corresponding resource topics to which they relate. The level of detail in the description of each resource topic and the impacts from implementing the alternatives are described in **Chapters 3** and **4**.

Table 1-3
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Sagebrush Focal Area Designations/Withdrawal Recommendation • Do SFAs contribute to achieving conservation outcomes? • Relevance of this habitat designation in the absence of a mineral withdrawal? • Does the designation and associated management align with the State's plan/strategy?	Greater Sage-Grouse, soil, water, vegetation, other special status species, fish and wildlife, cultural, wildland fire management, livestock grazing, fluid mineral leasing, locatable minerals, social and economic considerations, and tribal interests
Administering Disturbance and Density Caps • How should non-habitat portions of PHMA be accounted for when administering the disturbance cap? • How can local data on how Greater Sage-Grouse use the landscape in Utah inform the disturbance cap? • Can the disturbance and density caps be administered to incentivize avoidance of important Greater Sage-Grouse habitat without blanket constraints on energy and mineral development?	All, except for air quality, renewable energy, and oil shale and tar sands
Modifying Habitat Objectives • Are the objectives applicable to the ecological conditions and potential for areas throughout Utah? • Do the indicators align with the site-specific needs of the species? • How will local science be incorporated, recognizing differing ecological conditions and potential throughout the planning area?	Greater Sage-Grouse, vegetation, other special status species, fish and wildlife, wild horses and burros, and livestock grazing
Waivers, Exceptions, and Modifications for NSO Stipulations • Can development occur in portions of PHMA without impacting Greater Sage-Grouse and its habitat? • Change in requirements for the USFWS to approve waivers, exceptions, or modifications • Impact of oil and gas leasing on achieving Greater Sage-Grouse conservation outcomes	Greater Sage-Grouse, air, soil, water, vegetation, other special status species, fish and wildlife, wild horses and burros, cultural, visual resources, wildland fire management, wilderness characteristics, fluid mineral leasing, social and economic considerations, and tribal interests
General Habitat Management Areas in Utah • What management of Greater Sage-Grouse habitat outside of PHMA is necessary to balance conservation outcomes for Greater Sage-Grouse with local economic development opportunities? • Are any habitat designations warranted to achieve conservation outcomes beyond the State of Utah's 'Sage-Grouse Management Area' designation?	All, except wild horses and burros, livestock grazing, recreation, and coal

Table 1-3
Issues and Related Resource Topics

Issues	Resource Topics Related to the Issues
Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA • Is management to protect Greater Sage-Grouse necessary in areas of non-habitat within PHMA? • Can conservation of Greater Sage-Grouse occur while considering opportunities for development within PHMA?	All, except Greater Sage-Grouse, livestock grazing, travel and transportation, and coal
Adaptive Management • How can adaptive management responses better focus on the factors causing the declines? • Identify the process for changing management if species has recovered from an action (or actions) that tripped a trigger • Identify a process for potentially removing an area from PHMA if recovery efforts fail	All
Prioritization of Mineral Leasing • Does the objective for prioritizing fluid mineral leasing outside PHMA and GHMA align with the state's Greater Sage-Grouse conservation strategy?	Greater Sage-Grouse, vegetation, other special status species, fish and wildlife
Land Disposal and Exchanges • Is retaining all lands managed as PHMA and GHMA always the only means of conserving Greater Sage-Grouse? • Can site-specific conditions surrounding potential land disposals or exchanges affect whether retention of public lands is the best management approach? • Increase flexibility in considering the benefit to disposing of Greater Sage-Grouse habitat where the public would benefit from such a transaction	Greater Sage-Grouse, vegetation, other special status species, fish and wildlife, wildland fire management, wilderness characteristics, land use and realty, oil shale and tar sands, and social and economic conditions
Managing Habitat to Manage Predation • Are there vegetation management measures that would reduce the threat of predation to Greater Sage-Grouse?	Greater Sage-Grouse, vegetation, special status species, and fish and wildlife
Burial of Transmission Lines • Is burial of every proposed transmission line or renewal, amendment, or reauthorization of existing transmission lines the best conservation approach for Greater Sage-Grouse? • Is prioritizing burial of transmission lines consistent with the state's conservation strategy?	Greater Sage-Grouse, soil resources, vegetation, other special status species, fish and wildlife, cultural resources, visual resources, wildland fire management, land use and realty, renewable energy, social and economic conditions, and tribal interests

1.5.2 Clarification of Planning Decisions in the 2015 ARMPA

The following issues with existing planning decisions were raised during scoping. These issues require clarification to the ARMPA language but, because they are clarifications and do not change management as intended or analyzed in the 2015 Final EIS, they do not require new analysis. The clarifying language for these planning decisions is displayed in this planning document to communicate how these issues are being addressed.

Modifying Habitat Management Area Boundaries

The PHMA boundaries were initially designated to align with the areas mapped as "habitat" within the State's 2013 SGMA; however, the State's SGMA boundaries were intended to be adjusted based on site-specific data. Similarly, the PHMA boundaries were intended to be able to be adjusted (increased or decreased) based on site-specific data to adequately capture Greater Sage-Grouse habitat needs to the corresponding Greater Sage-Grouse population, based on best available site-specific science and monitoring data. This was clearly described in language in the 2015 Final EIS, Section 2.7.4.

Modifying Mitigation Standard

Since completion of the BLM's 2015 ARMPAs, the State of Utah has developed a Compensatory Mitigation Program to offset impacts on Greater Sage-Grouse from potential development. The current language in the ARMPA does not align with the State's program. Adjusting language for the mitigation standard for Greater Sage-Grouse to match that already contained in the BLM's policies for sensitive species improves alignment with the State's Greater Sage-Grouse management strategies and its Compensatory Mitigation Program while retaining the principles present in the ARMPA. As the principles are consistent with the current ARMPA, the adjustment does not require new analysis.

Clarifying Application of Lek Buffers

During scoping, an issue was raised questioning whether the lek buffers identified in the 2015 ARMPA were tools to analyze and reduce impacts or to preclude activities in the buffer area. The BLM's 2015 ARMPA provided direction to apply lek buffer-distances; however, the appendix describing how to apply the buffers is not consistent on whether they are a tool to "evaluate impacts to leks" or to "relocate [projects] outside the applicable lek buffer-distances." This process clarifies the inconsistency by aligning the buffer strategy with the BLM Utah's PHMA strategy, which is consistent with the State of Utah's management approach. Like the state's SGMA, the BLM's PHMA was mapped to capture all seasonal habitats used by priority populations of Greater Sage-Grouse in the State, not just focus on breeding or nesting areas that are addressed by lek buffers. Because the clarifications in how lek buffers are applied are consistent with the strategies already contained in the 2015 ROD/ARMPA and analyzed in the 2015 Final EIS, no additional analysis is necessary.

The 2015 ARMPA appendix also includes language that "justifiable departures to decrease or increase from [the] distances, based on local data [and] best available science…may be appropriate for determining activity impacts." Since completion of the 2015 ROD/ARMPA, Utah State University has analyzed the relationships between power lines and nesting and brood-rearing hen data from Utah. Based on their analysis, the tall structures buffer is being decreased from 2.0 miles to 1.7 miles, consistent with the language already in the appendix. Because such adjustments were already provided for in the appendix, no additional analysis is necessary.

Clarifying Grazing Systems and Prioritization of Grazing Permits

The 2015 ARMPA includes several management actions in the livestock grazing section that duplicate existing agency regulations, policies, or management actions in other sections of the ARMPA. As such, these actions would continue to be implemented whether or not they appear in the land use plan. Additionally, these actions tend to address management on livestock grazing in general, rather than focusing on the threat to Greater Sage-Grouse from improper livestock grazing, which is the focus of the State's management and strategies. Because removing these actions does not change whether they are implemented via regulation, policy, or other management action, no new analysis is required.

Clarifying Management of Water Developments for Livestock

The second sentence of management action MA-LG-10 in the 2015 ROD/ARMPA could be interpreted as potentially impinging on the State's authority to manage water rights; however, the second sentence merely repeats the principle of the first sentence of this action with more specific details to a type of vegetation condition. So long as the first sentence is met, the second sentence's removal does not change any impacts, and increases alignment with the State's plans and strategies.

Clarifying the Role of the State of Utah and Counties with Respect to Travel Management Planning

An issue was raised in scoping to clarify the role of governmental parties in subsequent travel management efforts. Clarification of who needs to be included in coordination for implementation-level travel management planning does not have any on-the-ground impact, and therefore does not require new analysis.

Clarifying the Role of the BLM, State of Utah, and Counties with Respect to Predator Control

An issue was raised in scoping to clarify the role of governmental parties in predator control. Successful predator management requires coordination across a wide variety of state, county, and federal agencies with differing jurisdictions. The importance of such coordination was addressed in this RMPA/EIS as a clarification of language already present in the 2015 ARMPA. Clarification of the importance of such coordination does not have any on-the-ground impact, and therefore does not require new analysis.

Clarifying Management of Surface Coal Mining

Issues were raised during scoping regarding surface mining of coal in Greater Sage-Grouse habitat. Management Action MR-18 in the 2015 ARMPA included language that addressed this issue, but it became apparent through scoping that the language was not sufficiently clear. To address this confusion the language was modified to clarify the intent of the 2015 ARMPA. As this does not include a change in the actual decision, but merely a clarification to align with the intent of the 2015 ARMPA, no new impacts need to be analyzed.

Decisions that Require Analysis of Specific Alternatives during Implementation

An issue from scoping noted that several of the ARMPA actions did nothing more than direct analysis of specific alternatives during environmental review of site-level projects. Nothing in the State of Utah's plan directs blanket analysis of a given course of action without consideration of the issues and site-specific resource conditions. As such, requirements to analyze specific alternatives regardless of site-specific issues do not align with the State's plan or strategies. Because there is no impact associated with simply "considering" a future unknown action, there is no corresponding impact as a result of removing it from required consideration. Therefore no new impacts need to be analyzed. Any actual impacts of a given "considered" action would be determined during the site-specific NEPA effort and be based on the specific conditions in the given planning area.

1.5.3 Issues and Resource Topics not Carried Forward for Additional Analysis (Scoping Issues Outside the Scope and Scoping Issues Previously Analyzed)

Issues and Related Resource Topics not Carried Forward for Additional Analysis

Comments were raised regarding managing for target Greater Sage-Grouse population levels as an issue for consideration during scoping for this RMPA/EIS. The issue was not carried forward for detailed

analysis because the BLM does not manage species populations, an authority that falls under the jurisdiction of the State of Utah and implemented by the Division of Wildlife Resources.

Because the following issues were analyzed in the 2015 Final EIS, and no significant new information has emerged, they do not require additional analysis in this RMPA/EIS and these related resource topics are dismissed from additional analysis. The types of impacts on these resources are described in the range of alternatives in the 2015 Final EIS. The impacts of implementing the alternatives in this RMPA/EIS are within the range of alternatives previously analyzed:

- Restrictions on rights-of-way (ROWs) and infrastructure
- ROW avoidance in PHMA and GHMA
- Varying stipulations applied to oil, gas, and, geothermal development
- Impacts of NSO stipulations on Greater Sage-Grouse habitat on land not administered by the BLM
- Numerical noise limitations in PHMA
- Contribution of disturbance caps toward Greater Sage-Grouse conservation objectives
- Required design features (RDFs)
- Vegetation treatments and wildfire response
- Habitat and plan effectiveness monitoring using tools such as the habitat assessment framework

The BLM evaluated the following issues as part of the 2015 Final EIS. For the same reasons they were dismissed in the 2015 Final EIS, they were not carried forward for detailed analysis in this RMPA/EIS (see Section 1.6.3 in the 2015 Final EIS):

- Greater Sage-Grouse hunting
- Predator control
- Military overflights of PHMA/GHMA

Resource Topics Not Carried Forward for Additional Analysis

The resource topics below are dismissed from detailed analysis. While these resource topics may have impacts related to Greater Sage-Grouse conservation that were analyzed in the 2015 Final EIS, they are dismissed from detailed analysis because they have no potentially significant impacts from actions proposed in this RMPA/EIS:

- Geology
- Paleontological resources
- Special designations (i.e., areas of critical environmental concern, wilderness, wilderness study areas, wild and scenic rivers, and national trails)
- Lands with wilderness characteristics managed for their protection (natural areas)

1.6 RELATIONSHIP TO OTHER POLICIES, PLANS, AND PROGRAMS

The BLM recognizes the importance of state, tribal, and local plans. The BLM will be consistent with or complementary to the management actions in these plans to the maximum extent consistent with FLPMA.

1.6.1 State Plans/Strategies

State plans and strategies considered during planning are the following:

- Governor's 10-year Strategic Energy Plan (2011)
- Uintah Basin Energy Zone (2015)
- Green River Energy Zone (2014)
- Conservation Plan for Greater Sage-Grouse in Utah (2013)
- State of Utah Executive Order 2015/002 – Implementing the Utah Conservation Plan for Greater Sage-Grouse (2015)
- Utah Wildlife Action Plan (2015)
- State of Utah Administrative Code – R-634-003 – Compensatory Mitigation Program (2018)
- State of Utah Resource Management Plan (2018)

1.6.2 Tribal Plans/Strategies

Tribal plans and strategies considered during planning are the following:

- Uintah and Ouray Greater Sage-Grouse Conservation Ordinance (2013)

1.6.3 Local Plans

Local land use plans considered during planning are the following:

- Beaver County General Plan (1994) and Beaver County Resource Management Plan (RMP) (2017)
- Box Elder County General Plan (1998, as amended) and Box Elder County RMP (2017)
- Cache County Comprehensive Plan (1998) and Cache County RMP (2017)
- Carbon County Master Plan (1997) and Carbon County RMP (2017)
- Daggett County General Plan (2009) and Daggett County RMP (2017)
- Duchesne County General Plan and Duchesne County RMP (2017)
- Emery County General Plan (1996, as amended) and Emery County RMP (2017)
- Garfield County, Utah, General Plan (1995, as amended) and Garfield County RMP (2017)
- Garfield County, Utah, Visual Resource Management Plan
- Grand County General Plan (2012) and Grand County RMP (2017)
- Iron County General Plan (1995, as amended) and the Iron County RMP (2017)
- Juab County General Plan and Juab County RMP (2017)
- Kane County, Utah, General Plan (1998, as amended) and Kane County RMP (2017)
- Millard County General Plan (2010) and Millard County RMP (2017)
- Morgan County General Plan (2010) and Morgan County RMP (2017)
- General Plan for Piute County (1994) and Piute County RMP (2017)
- Rich County Comprehensive Plan (1996) and Rich County RMP (2017)
- Sanpete County General Plan (2010, as amended) and Sanpete County RMP (2017)
- Sevier County General Plan (1998) and Sevier County RMP (2017)

- Eastern Summit County General Plan (2010) and Summit County RMP (2017)
- Tooele County General Plan (1995) and Tooele County RMP (2017)
- Uintah County Land Use Plan (2011) and Uintah County RMP (2017)
- Uinta County Comprehensive Plan (2011)
- Uinta County Conservation District Plan
- Utah County General Plan (2006) and Utah County RMP (2017)
- Wasatch County General Plan (2010) and Wasatch County RMP (2017)
- General Plan for Wayne County (1994) and Wayne County Public Lands RMP (2017)

1.6.4 Local Sage-Grouse Working Group Plans

- Castle Country Greater Sage-Grouse Local Conservation Plan (2006)
- West Box Elder Greater Sage-Grouse Local Working Group Conservation Plan (2007)
- Color Country Greater Sage-Grouse Local Conservation Plan (2008)
- Morgan-Summit Greater Sage-Grouse Local Conservation Plan (2006)
- Parker Mountain-Emery Greater Sage-Grouse Local Conservation Plan (2014)
- Rich County Coordinated Resource Management Greater Sage-Grouse Conservation Plan (2006)
- Southwest Desert Greater Sage-Grouse Local Conservation Plan (2007)
- Strawberry Valley Greater Sage-Grouse Local Conservation Plan (2006)
- Uinta Basin Greater Sage-Grouse Local Conservation Plan (2007)
- West Desert Greater Sage-Grouse Local Conservation Plan (2007)

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Chapter 2. Alternatives

2.1 Introduction

This chapter describes the alternatives evaluated as a part of this RMPA/EIS. This RMPA/EIS analyzes in detail the No-Action Alternative and the Management Alignment Alternative. In addition to the alternatives considered in detail, this chapter includes a description of alternatives considered but eliminated from detailed analysis. The 2015 Final EIS also considered issues and analyzed alternatives for management of Greater Sage-Grouse habitat.

Components of Alternatives

Goals are broad statements of desired outcomes and are not quantifiable or measurable; objectives are specific measurable desired conditions or outcomes intended to meet goals. Goals and objectives can vary across alternatives, resulting in different allowable uses and management actions for some resources and resource uses.

Management actions and allowable uses are designed to achieve goals and objectives. Management actions are measures that guide day-to-day and future activities; allowable uses delineate those that are permitted, restricted, or prohibited and may include stipulations or restrictions. Allowable uses also identify lands where specific uses are excluded to protect resource values, or where certain lands are open or closed in response to legislative, regulatory, or policy requirements. Implementation decisions are site-specific actions and are typically not addressed in RMPs.

2.2 Alternatives Considered but not Analyzed in Detail

2.2.1 Varying Constraints on Land Uses and Development Activities

During scoping, some commenters asked for increased or additional constraints on land uses and ground-disturbing activities to protect Greater Sage-Grouse habitat. These constraints are beyond those in the current management plan.[1] Other commenters, in contrast, asked the BLM to consider eliminating or reducing constraints on land uses, or incorporating other flexibilities into the BLM's implementation of RMPs, in addition to those issues that are already evaluated in the Management Alignment Alternative. The BLM considered every scoping comment and, where appropriate, incorporated these issues into the Management Alignment Alternative following coordination with the State. Because the purpose and need for the BLM's action, building off of the 2015 ROD/ARMPA, is to enhance cooperation with the states by seeking to better align the BLM's RMPs with individual state plans and/or conservation measures (e.g., Conservation Plan for Greater Sage-Grouse in Utah; Utah Executive Order EO/2015/002, Utah Sage-Grouse Compensatory Mitigation Program), the BLM gave great weight to the State's identification of issues that warrant consideration in this planning effort. .

This planning process does not revisit every issue that the BLM evaluated in 2015. Instead, the BLM now addresses refinements to the 2015 ROD/ARMPA decisions, consistent with the BLM's purpose and need

[1]For example, this 2018 planning process, built upon the 2015 planning process, will continue to ensure that the BLM complies with its special status species policy, including the commitment to "implement measures to conserve [Special Status] species and their habitats… and promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA." (BLM Manual 6840, Special Status Species Management)

for action. Accordingly, this RMPA/EIS has as its foundation in the comprehensive 2015 Final EIS and ROD/ARMPA, and incorporates those documents by reference—including the entire range of alternatives evaluated through the 2015 planning process:

- Alternative A would have retained the management goals, objectives and direction specified in the BLM RMPs and the Forest Service land and resource management plans effective prior to the 2015 ROD/ARMPA.
- Alternative B was based on the conservation measures developed by the National Technical Team planning effort in Washington Office IM 2012-044. As directed in the IM, the conservation measures developed by the National Technical Team must be considered and analyzed, as appropriate, through the land use planning process and NEPA by all BLM state and field offices that contain occupied Greater Sage-Grouse habitat. Most management actions included in Alternative B would have been applied to PHMA.
- Alternative C was based on a citizen groups' recommended alternative and was combined with Alternative F considered by ID, NV, CA, MT, and OR. This alternative emphasized improvement and protection of habitat for Greater Sage-Grouse and was applied to all occupied Greater Sage-Grouse habitat. Alternative C would have limited commodity development in areas of occupied GRSG habitat, and would have closed or designated portions of the planning area to some land uses.
- Alternative D, which was identified as the Preferred Alternative in the Draft RMPA/EIS, balanced opportunities to use and develop the planning area and protects Greater Sage-Grouse habitat based on scoping comments and input from Cooperating Agencies involved in the alternatives development process. Protective measures would have been applied to Greater Sage-Grouse habitat.
- Alternative E was the alternative provided by the State or Governor's offices for inclusion and analysis in the EISs. It incorporated guidance from specific State Conservation strategies and emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.
- The Proposed LUPA incorporated guidance from specific State Conservation strategies, as well as additional management based on the National Technical Team recommendations. This alternative emphasized management of Greater Sage-Grouse seasonal habitats and maintaining habitat connectivity to support population objectives.

The BLM considered the entire range of alternatives from the 2015 Final EIS to identify issues meriting reconsideration, given the BLM's goal of enhancing alignment with state plans. In this manner, the BLM will continue to appropriately manage Greater Sage-Grouse and its habitat through this planning effort in tandem with the 2015 ROD/ARMPA.

Further, additional constraints on land uses or development without a documented need would not meet the purpose of SO 3353. The BLM did not discover new information that would indicate the agency should increase the level of conservation, management, and protection to achieve its land use plan objective. As part of the consideration of whether to amend the 2015 Greater Sage-Grouse RMPs, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018; see **Section 3.1**). In addition, SO 3353 directs the BLM to promote habitat conservation, while contributing to economic growth and energy

independence. As analyzed in the 2015 Final EIS, all of the previously analyzed alternatives, including one proposing constraints stricter than the current management plan, were predicted to result in a loss of development opportunities on public lands.

2.2.2 Making Priority Habitat Management Areas the same as the State's Sage-Grouse Management Areas

During alternatives development, the interdisciplinary team considered strategies to improve alignment between the BLM's priority habitat management areas (PHMA) and the State of Utah's Greater Sage-Grouse management areas (SGMA). This included considering aligning PHMA with the entire 2013 SGMA boundaries, regardless of whether the SGMA was mapped as habitat, non-habitat, or opportunity area.

As noted in **Chapter 1**, **Section 1.5.2**, PHMA was developed to align with areas mapped as habitat within the 2013 SGMAs. Remapping PHMA boundaries to include the 2013 SGMA areas mapped as non-habitat and opportunity areas would decrease alignment with the State's plan by applying the same level of management to non-habitat in SGMAs as is applied to areas of habitat. It would also be inconsistent with BLM planning direction that "when applying leasing restrictions, the least restrictive constraint to meet the resource protection objective should be used" (BLM-H-1601-1 - Land Use Planning Handbook, Appendix C, page 24). This alternative was eliminated from detailed analysis for reasons similar to those discussed in **Section 2.2.1** above.

In particular, the BLM's resource management plans are the primary location for defining management actions intended to avoid or minimize impacts on Greater Sage-Grouse habitat. This includes land use allocations and associated stipulations for activities such as oil and gas leasing (e.g., no surface occupancy, controlled surface use) and consideration of rights-of-way (e.g., avoidance, exclusion). These allocations are necessary to align with the State's Greater Sage-Grouse management protocol that "avoidance of disturbance to habitat or birds by an activity is the preferred option" and to "avoid surface disturbance to the greatest degree possible" while "balancing the economic and social needs of the residents of Utah."

The interdisciplinary team determined the approach of matching PHMA and SGMA boundaries would not be consistent with BLM policies or increase alignment with the State's strategies, compared with other potential adjustments further considered in this chapter (e.g., exceptions for PHMA with areas of non-habitat and providing for boundary adjustments). Because of this, this approach was not analyzed in detail.

2.2.3 Use of Other Habitat Maps for PHMA Designation

During the scoping, some commenters included requests that the BLM use different habitat maps for use in designating PHMA. Some commenters requested expanding current PHMA to include all areas within 5 miles of any occupied lek, while some requested contracting it to only include areas that currently have sagebrush. An approach based on these comments was considered but eliminated from detailed analysis for the reasons discussed below.

- The request that any area within 5 miles of a lek be included as PHMA relied on one piece of literature that suggested that impacts from development may extend for 5 miles from occupied leks; however, based on a substantial review of literature regarding lek buffers, the USGS

recognized "that because of variation in populations, habitats, development patterns, social context, and other factors, for a particular disturbance type, there is no single distance that is an appropriate buffer for all populations and habitats across the Greater Sage-Grouse range" (Manier et al. 2014). Additionally, making areas within 5 miles of occupied leks PHMA would increase disparity with the State's plan and strategies, which is not consistent with the purpose and need. Because of this, an alternative that automatically makes any area within 5 miles of occupied leks PHMA was not analyzed in detail.

- Some commenters requested that PHMA boundaries be adjusted to include only areas with sagebrush, including omitting areas that could be habitat with treatment. Mapping areas for PHMA as broader polygons is intended to encompass Greater Sage-Grouse habitats used throughout the year by known Greater Sage-Grouse populations. Peer-reviewed literature notes that Greater Sage-Grouse habitat can be described at four scales: a broad geographic range that defines the species distribution, populations/sub-populations, mosaics of seasonal habitats utilized by individuals, and the food and cover attributes at particular sites (see Appendix N of the 2015 ROD/ARMPA).
- PHMAs are areas that meet some stage of the Greater Sage-Grouse life-cycle requirements, based on best available science. These broad habitat maps are necessary at the resource management plan-scale of planning in order to include a variety of important seasonal habitats and movement corridors that are spread across geographically diverse and naturally fragmented landscapes. Greater Sage-Grouse use multiple areas to meet seasonal habitat needs throughout the year and the resulting mosaic of habitats (e.g., winter, breeding, nesting, early brood-rearing, late brood-rearing, transitional, and movement corridor habitats) can encompass large areas. Broad habitat maps increase the likelihood that all seasonal habitats (including transition and movement corridors) are included. While areas of non-habitat, in and of themselves, may not provide direct habitat value for Greater Sage-Grouse (e.g., canyons, water bodies, and human disturbances), these areas may be crossed by birds when moving between seasonal habitats. Therefore, these habitat management areas are not strictly about managing habitat but are about providing those large landscapes that are necessary to meet the life-stage requirements for Greater Sage-Grouse. These areas will include areas that do not meet the habitat requirements described in the Seasonal Habitat Objectives table in the 2015 Final EIS. These areas meet Greater Sage-Grouse habitat needs by maintaining large, contiguous expanses of relatively intact sagebrush vegetation community.

Further, the State of Utah has statutory responsibility to manage Greater Sage-Grouse. Where submitted information and strategies are inconsistent with those used by the State, the BLM has chosen to use the State of Utah's information based on their knowledge of and responsibility for the management of Greater Sage-Grouse. Using maps that limit PHMA to just sagebrush would increase disparity from the State's plan and strategies, which is not consistent with the purpose and need. For these reasons, an alternative that shrinks PHMA to just areas with sagebrush was not analyzed in detail.

2.2.4 County Sage-Grouse Management Plans

During scoping, some counties requested that Greater Sage-Grouse management be developed on a county-by-county basis to accommodate the differences in habitat and land uses. After review of the various county plans, it was determined an alternative specifically based on these plans not be analyzed in detail for two general reasons:

1. Aspects of some county plans are substantially similar to the State's plans and strategies. Consideration of a separate alternative for these aspects is unnecessary since alignment with the State's strategies is the purpose of this effort.

2. Some aspects of the county plans are substantially different from the State's plan and strategies. To the extent that the plans diverge, following those aspects of the county plans would not meet the purpose and need. Since the purpose of this planning effort is to increase alignment with the State strategies, aligning with different approaches would not be consistent with the purpose and need. Additionally, the BLM's planning regulations note that "where state and local government policies, plans, and programs differ, those of the higher authority will normally be followed" (43 CFR 1610.3-2(d)).

2.3 DESCRIPTION OF ALTERNATIVES

2.3.1 No-Action Alternative

Under the No-Action Alternative, the BLM would not change the management actions from the 2015 Utah Greater Sage-Grouse Approve Resource Management Plan Amendment. Greater Sage-Grouse habitat would continue to be managed under current management direction. Goals and objectives for BLM-administered lands and federal mineral estate would not change. Allowable uses and restrictions pertaining to such activities as mineral leasing and development, lands and realty, and livestock grazing would also remain the same. This alternative includes the designation of Sagebrush Focal Areas (SFAs), PHMA, and GHMA, with corresponding management for each type of area.

2.3.2 Management Alignment Alternative

This alternative was developed through coordination with the State of Utah and cooperating agencies to increase alignment with the State of Utah's Greater Sage-Grouse conservation plan and strategies and to support conservation outcomes for Greater Sage-Grouse.

The BLM continues to build upon the 2015 planning effort as envisioned in SO 3353 by collaborating with states to improve compatibility between federal management plans and other plans and programs at the state level, while ensuring consistency with the BLM's multiple use mission. This enhanced cooperation between the BLM and the Utah Governor's office would lead to improved management and coordination with states across the range of Greater Sage-Grouse in Utah. At the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS proposes a change to compensatory mitigation by modifying the net conservation gain standard that the BLM incorporated into its plans in 2015. The DOI and the BLM have also modified their mitigation policies since the 2015 plans were finalized. The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans.

The Management Alignment Alternative focuses management on PHMA to protect the habitats that support over 95 percent of Greater Sage-Grouse populations in Utah, while removing the designation and management of GHMA. Additionally, PHMA management is adjusted to maintain avoidance

protections while allowing site-specific adjustments to account for the unique nature of habitat types and distribution throughout Utah.

Consistent with the notice of Cancellation, which canceled the BLM's application to withdraw SFA from locatable mineral entry (82 *Federal Register* 195, October 11, 2017, p. 47248), this alternative would remove the recommendation for withdrawal. The effects of such action are included in **Chapter 4**.

2.4 COMPARATIVE SUMMARY OF ALTERNATIVES

This section summarizes and compares how management associated with issues changes between the two alternatives. In comparing the alternatives considered in this planning effort, it is important to clarify that most land use allocations have not changed from those in the 2015 effort (e.g., right-of-way open/avoidance/exclusion, oil and gas open/controlled surface use/no surface occupancy/closed, and salable open/closed). Those allocations are the BLM's mechanism to avoid disturbance, consistent with the direction in the State's strategies to first avoid development; rather, the differences between the alternatives are the degree to which local information can be taken into account to determine if a more flexible approach can be applied that to consider development while not impacting Greater Sage-Grouse populations.

It is also critical to note that information in this table can be useful in helping the reader understand differences between the alternatives; however, there are limitations. The reader is urged to use the information in this table as a quick reference but to read the detailed alternatives and analyses (**Section 2.5** and **Chapter 4**) to understand specific differences.

Issue	No-Action Alternative	Management Alignment Alternative
Sagebrush Focal Area Designations/Withdrawal Recommendation	• 181,100 acres of SFA • Recommended for withdrawal and prioritized for treatments/livestock permits	• 0 acres of SFA • Return to underlying management (usually PHMA) – no withdrawal
Administering the Disturbance and Density Caps	• No additional disturbance if an area has >3% disturbance or an average of >1 facility/640 acres	• If project design and site conditions indicate a project will improve habitat, exceedances of disturbance and density caps are allowed
Modifying Habitat Objectives	• Values based on standard vegetation data, differentiated by populations. • Adjustments can be made at the local level based on local science	• Values based on micro-site vegetation data combined with broad vegetation, climatic, and elevation data. • Adjustments can be made at the local level based on local science
Waivers, Exceptions, and Modifications (WEMs) for NSO Stipulations	• In SFA, no WEMs • In PHMA, only one lease exception and no waivers or modifications. • To grant the exception, the state, BLM, and Fish and Wildlife Service must all agree it will benefit Greater Sage-Grouse	• No SFA • Exception and modification in PHMA if the development is in non-habitat and doesn't indirectly impact habitat • Would still need to apply minimization measures (3%, noise, etc.) • Waiver if the area is no longer PHMA
General Habitat Management Areas in Utah	• 448,600 acres of GHMA • Includes lek buffers, required design features, net conservation gain, habitat objectives, leasing	• 0 acres of GHMA, and removing associated management • Management in place prior to the 2015 Plan Amendment would remain

Issue	No-Action Alternative	Management Alignment Alternative
	prioritization • Management in place prior to the 2015 Plan Amendment would remain	• Avoid indirect impacts on PHMA • Replace occupied habitat developed outside PHMA by improving habitat in PHMA
Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA	• Non-habitat portions of GHMA can be developed without restriction, but not non-habitat portions of PHMA	• Non-habitat portions of PHMA can be developed if it does not indirectly impact habitat
Application of Lek Buffers	• Unclear whether buffers are to "assess and address impacts" or "not allow activities" within the buffer distances • Adjust buffers with local scientific data	• Clarifies that buffers are to "assess and address impacts" to maintain lek persistence • Adjust buffers with local scientific data
Adaptive Management	• Determine the cause of a decline after management changes have been made • If area recovers, another plan amendment would be needed to change management	• Determine cause of decline first, then apply specifically designed response • If area recovers, return to original management • If birds are no longer present, do not manage as PHMA anymore
Prioritization of Mineral Leasing	• In addition to NSO stipulations, prioritize oil and gas leasing outside of PHMA and GHMA	• Remove prioritization objective and rely on NSO stipulation and other measures to protect habitat
Land Disposal and Exchanges	• No disposals of PHMA or GHMA unless no impacts on Greater Sage-Grouse or habitat	• Can consider disposal of PHMA if the disposal will not compromise the distribution or abundance of the population
Predation	• Collaborate with applicable government entities to control predator populations	• Same as No-Action, plus support and encourage efforts to minimize impacts from predators • Remove trees with unoccupied corvid nests during habitat treatments
Burial of Transmission Lines	• Require burial of transmission lines unless "not technically feasible."	• Minimize and mitigate impacts from transmission lines, considering options that may include burial
Modifying Habitat Management Area Boundaries	• Adjust PHMA boundaries based on site-specific information	• Clarified that PHMA boundaries should be adjusted based on site-specific information
Modifying Mitigation Standard	• Projects must provide a net conservation gain for Greater Sage-Grouse	• Projects must improve the condition of Greater Sage-Grouse habitat
Clarifying Grazing Systems and Prioritization of Grazing Permits	• Repeats regulations, policies, and management actions from other sections	• Focuses specifically on identifying and minimizing improper livestock grazing • Removes actions that repeat regulations, policies, or management from other sections
Clarifying Management of Water Developments for Livestock	• Includes a sentence that could be interpreted as potentially impinging on the State's authority to manage water rights	• Removes the sentence - remaining language still manages water developments for neutral or beneficial impacts on Greater Sage-Grouse

Issue	No-Action Alternative	Management Alignment Alternative
Clarifying the Role of the BLM, State of Utah, and Counties with Respect to Travel Management Planning	• Does not specifically direct engagement of state, local and tribal governments during implementation-level travel planning	• Adds language to clarify that offices should engage State, local and tribal governments
Clarifying Management of Surface Coal Mining	• Coal unsuitability will be determined when a lease is requested, but then declares that all PHMA is "essential habitat" for the purposes of the suitability criteria	• Clarifies that the unsuitability process will be conducted when a lease is requested based on site-specific information, including identification of "essential habitat"
Decisions that Require Analysis of Specific Alternatives during Implementation	• Includes several actions that direct consideration of specific alternatives during environmental reviews	• Removes direction to consider specific alternatives, instead allowing the NEPA process to identify alternatives based on site-specific issues

2.5 COMPARISON OF ALTERNATIVES

This section presents the No-Action Alternative and Management Alignment Alternative side-by-side to facilitate a comparison of the changes being considered.

The following points describe this section's format to help the reader cross-walk between the alternatives considered in this RMPA/EIS and the 2015 Approved Resource Management Plan Amendment (2015 ARMPA):

- This process is driven by the issues identified during scoping; the table below is organized by the issues identified in **Section 1.5.1** and **Section 1.5.2**. The management actions from the 2015 ARMPA that correspond to each issue are presented under each corresponding issue header. Actions that correspond to more than one issue are repeated under the different issue headings.
- The table focuses on the differences between the No-Action Alternative and the Management Alignment Alternative. Goals, objectives, and management actions from the 2015 ARMPA that would be the same in both alternatives—indicating no recommended changes—are not shown. As such, if there are portions of actions not present, or if there are numbered actions that appear to be missing, the entirety of the noted actions would continue in both alternatives and therefore will not result in a difference in impacts. All actions not presented in the table are incorporated by reference from the 2015 ARMPA.
- If the Management Alignment Alternative includes a small change to a lengthy objective or management action, the application portions of the action that include the change are shown, but the remainder of the action for which there is no change is not repeated. In these instances, an ellipsis (…) is shown to indicate where the remainder of the action fits. The following text is also included to help the reader know where the remainder of the unchanged portions of the action are located: "Remainder of this action is unchanged from the 2015 ARMPA." All unchanged portions of actions not presented in the table in their entirety are incorporated by reference from the 2015 ARMPA.
- In some cells, "No Similar Action" is used to indicate that there is no similar goal, objective or action to the given alternative in comparison to the other alternative.

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
Issue: Sagebrush Focal Area Designations/Withdrawal Recommendation		
MA-SSS-2	Designate SFA as shown on Figure 2-1 (181,100 acres of BLM surface estate; 52,200 acres split-estate federal minerals). SFA will be managed as PHMA, with the following additional management: • Recommended for withdrawal from the Mining Law of 1872 (as amended), subject to valid existing rights • Managed as NSO, without waiver, exception, or modification, for fluid mineral leasing Prioritized for vegetation management and conservation actions in these areas, including, but not limited to land health assessments, wild horse and burro management actions, review of livestock grazing permits/leases, and habitat restoration (see specific management sections).	No similar action. [No areas would be managed as SFA. Lands previously managed as SFA would be managed according to their underlying habitat management area designation.]
Objective VEG-1	In SFA and PHMA, the desired condition… [Remainder of this action is unchanged from the 2015 ARMPA.]	In PHMA, the desired condition… [Remainder of this action is unchanged from the 2015 ARMPA.]
MA-LG-6	…NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within SFA and PHMA will…. [Remainder of this action is unchanged from the 2015 ARMPA.]	…NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMA would… [Remainder of this action is unchanged from the 2015 ARMPA.]
MA-LG-16	…Prioritize actions in SFA first, then PHMA…. [Remainder of this action is unchanged from the 2015 ARMPA.]	No similar action. [Prioritization sentence would be removed.]
MA-MR-3	…In SFA, there will be no waivers, exceptions, or modifications. In the remainder of PHMA, no waivers or modifications to a fluid mineral lease no-surface-occupancy stipulation will be granted…. [Remainder of this action is unchanged from the 2015 ARMPA.]	No similar action. [As no SFAs would exist, this action would be removed.]
MA-MR-12	SFA will be recommended for withdrawal from the Mining Law of 1872 (as amended), subject to valid existing rights (Figure 2-5, Locatable Minerals [Appendix A]).	No similar action. [As no SFAs would exist, this action would be removed.]
MA-LR-11	SFA will be recommended for withdrawal from the Mining Law of 1872 (as amended), subject to valid existing rights…. [Remainder of this action is unchanged from the 2015 ARMPA.]	No similar action. [As no SFAs would exist, this action would be removed.]

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
Issue: Administering Disturbance and Density Caps		
MA-SSS-3B	B- Disturbance Cap In PHMA, manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) PHMA associated with a Greater Sage-Grouse population area and 2) within a proposed project analysis area. See Appendix E, Greater Sage-Grouse Disturbance Cap Guidance, for additional information on implementing the disturbance cap, including what is and is not considered disturbance and how to calculate the proposed project analysis area. If the 3 percent anthropogenic disturbance cap is exceeded on all lands (regardless of land ownership) within Greater Sage-Grouse PHMA in any given population area (BSU), then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the Mining Law of 1872 [as amended], valid existing rights, etc.) will be permitted by the BLM within Greater Sage-Grouse PHMA in any given population area (BSU) until the disturbance has been reduced to less than the cap. If the 3 percent disturbance cap is exceeded on all lands (regardless of land ownership) within a proposed project analysis area in PHMA, then no further anthropogenic disturbance will be permitted by the BLM until disturbance in the proposed project analysis area has been reduced to maintain the area under the cap (subject to applicable laws and regulations, such as the Mining Law of 1872 [as amended], valid existing rights, etc.). Within designated utility corridors, the 3 percent disturbance cap may be exceeded at the project scale if the site specific NEPA analysis indicates that a net conservation gain to the species will be achieved. This exception is limited to projects which fulfill the use for which the corridors were designated (ex., transmission lines, pipelines) and the designated width of a corridor will not be exceeded as a result of any project co-location. An area with disturbance is not excluded from the 3 percent until it has been restored to provide Greater Sage-Grouse	B- Disturbance Cap In PHMA, manage discrete anthropogenic disturbances so they cover less than 3 percent of 1) PHMA associated with a Greater Sage-Grouse population area and 2) within a proposed project analysis area. See Appendix E, Greater Sage-Grouse Disturbance Cap Guidance, for additional information on implementing the disturbance cap, including what is and is not considered disturbance and how to calculate the proposed project analysis area. If the 3 percent anthropogenic disturbance cap is exceeded on all lands (regardless of land ownership) within Greater Sage-Grouse PHMA in any given population area (BSU), then no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the Mining Law of 1872 [as amended], valid existing rights, etc.) will be permitted by the BLM within Greater Sage-Grouse PHMA in any given population area (BSU) until the disturbance has been reduced to less than the cap. If the 3 percent disturbance cap is exceeded on all lands (regardless of land ownership) within a proposed project analysis area in PHMA, then no further anthropogenic disturbance will be permitted by the BLM until disturbance in the proposed project analysis area has been reduced to maintain the area under the cap (subject to applicable laws and regulations, such as the Mining Law of 1872 [as amended], valid existing rights, etc.). However, the 3 percent cap may be exceeded at either scale if a technical team determines that site-specific Greater Sage-Grouse habitat and population information, combined with project design elements (siting, minimization measures, and compensatory mitigation) indicates the project will improve the condition of Greater Sage-Grouse habitat within the proposed project analysis area. Factors considered by the team will include Greater Sage-Grouse abundance and trends, movement patterns, habitat

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	habitat. The objective of successful restoration is to provide for the needs of Greater Sage-Grouse, as evidenced by one of the following: • Vegetative cover is consistent with the Greater Sage-Grouse habitat objectives and the ecological site description (Objective SSS-3) or • Monitoring indicates the area is regularly used by Greater Sage-Grouse to sustain one or more seasonal habitat requirements (nesting, brood-rearing, winter) Final restoration success and approval for abandonment for disturbances will be subject to an interdisciplinary review of available monitoring data and final monitoring reports.	amount and quality, extent and alignment of project disturbance, location and density of existing disturbance, project design options and other biological factors. Such exceptions to the 3 percent disturbance cap may be approved by the BLM Authorized Officer only with the concurrence of the State Director. The finding and recommendation shall be made by the technical team which should consist of, at least, a field biologist or other Greater Sage-Grouse expert, a biologist representing the State of Utah, and should include coordination with the appropriate State of Utah agency. Within designated utility corridors, the 3 percent disturbance cap may be exceeded at the project scale if the site specific NEPA analysis indicates that doing so will improve the condition of Greater Sage-Grouse habitat in comparison to siting a project outside the designated corridor. This exception is limited to projects which fulfill the use for which the corridors were designated (ex., transmission lines, pipelines) and the designated width of a corridor will not be exceeded as a result of any project co-location. An area with disturbance within Greater Sage-Grouse habitat is not excluded from the 3 percent cap until it provides Greater Sage-Grouse habitat. The objective of successful restoration of disturbed occupied Greater Sage-Grouse habitat is to provide for the needs of Greater Sage-Grouse, which could be evidenced by one of the following: • Vegetative cover is consistent with the Greater Sage-Grouse habitat objectives and the ecological site description (Objective SSS-3) or • Monitoring indicates the area is regularly used by Greater Sage-Grouse to sustain one or more seasonal habitat requirements (nesting, brood-rearing, winter)

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		Areas of PHMA that were not Greater Sage-Grouse habitat at project initiation would be excluded from the 3 percent cap calculation upon project completion and reclamation, as outlined in the applicable lease or permit. Final restoration success and approval for abandonment for disturbances will be subject to an interdisciplinary review of available monitoring data and final monitoring reports.
MA-SSS-3C	C- Density of Energy/Mining Facilities Subject to applicable laws and regulations and valid existing rights, if the average density of one energy and mining facility per 640 acres (the density cap) is exceeded on all lands (regardless of land ownership) in PHMA within a proposed project analysis area, then no further disturbance from energy or mining facilities will be permitted by BLM: (1) until disturbance in the proposed project analysis area has been reduced to maintain the limit under the cap; or (2) unless the energy or mining facility is collocated into an existing disturbed area (subject to applicable laws and regulations, such as the Mining Law of 1872 [as amended], valid existing rights, etc.). Energy and mining facilities to which this action applies are: • Oil and gas wells and development facilities, • Coal mines, • Wind towers, • Solar fields, • Geothermal wells/developments, and • Active locatable, leasable, and saleable developments.	C- Density of Energy/Mining Facilities Subject to applicable laws and regulations and valid existing rights, if the average density of one energy and mining facility per 640 acres (the density cap) is exceeded on all lands (regardless of land ownership) in PHMA within a proposed project analysis area, then no further disturbance from energy or mining facilities will be permitted by BLM: (1) until disturbance in the proposed project analysis area has been reduced to maintain the limit under the cap; or (2) unless the energy or mining facility is collocated into an existing disturbed area (subject to applicable laws and regulations, such as the Mining Law of 1872 [as amended], valid existing rights, etc.); or (3) the process identified in MA-SSS-3B determines the project will improve the condition of Greater Sage-Grouse habitat through analysis of site-specific Greater Sage-Grouse habitat and population information and project design elements (siting, minimization measures, and compensatory mitigation). Energy and mining facilities to which this action applies are: • Oil and gas wells and development facilities • Coal mines • Wind towers • Solar fields • Geothermal wells/developments • Active locatable, leasable, and saleable developments

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative

Issue: Modifying Habitat Objectives

Objective SSS-3

Habitat Objectives for Greater Sage-Grouse

ATTRIBUTE	INDICATORS	DESIRED CONDITION
Breeding and Nesting (February 15–June 15)[1, 2, 3, 4, 5, 6]		
Lek Security	Proximity of trees	Trees absent or uncommon on shrub/grassland ecological sites within 1.8 miles (approx. 3 kilometers) of occupied leks.[6, 7, 8]
	Proximity of sagebrush to leks	Has adjacent sagebrush cover.[6]
Cover	% of seasonal habitat meeting desired conditions	>80% of the mapped nesting habitat meets the recommended vegetation characteristics, where appropriate (relative to ecological site potential, etc.).[8]
	Sagebrush cover	≥15%[6, 8, 9]
	Total shrub cover[6, 8, 9]	15-30%: Box Elder, Parker Mountain, Bald Hills, Hamlin Valley, Panguitch, Uintah south of Hwy 40 15-35%: Rich, Carbon, Emery, Sheeprocks, Ibapah, Uintah north of Highway 40
	Sagebrush height[6, 8, 9]	>12 inches (30 cm): Box Elder, Bald Hills, Hamlin Valley, Sheeprocks, Ibapah >10 inches (25 cm): Rich, Carbon, Emery, Uintah north of Highway 40 >8 inches (20 cm): Parker Mountain, Panguitch, Uintah south of Highway 40
	Predominant sagebrush shape[10]	>50% in spreading (applicable to the specific sagebrush types prone to columnar vs. spreading shape e.g., Wyoming, not black sage)[6]
	Perennial grass cover (such as	>10%: Box Elder, Bald Hills, Hamlin Valley, Rich, Carbon,

Habitat Objectives for Greater Sage-Grouse (See Map 3-4 for the Wasatch, Low, and Parker Habitat Clusters)

ATTRIBUTE	INDICATORS	DESIRED CONDITION
Breeding and Nesting (February 15–June 15)[1, 2, 3, 4, 5, 6]		
Lek Security	Proximity to conifers	Conifers are absent or uncommon on shrub/grassland ecological sites within 1.8 miles (approx. 3 kilometers) of occupied leks.[6, 7, 8]
	Proximity of sagebrush to leks	Has adjacent sagebrush cover.[6]
Cover	% of seasonal habitat meeting desired conditions	>80% of the mapped nesting habitat meets the recommended vegetation characteristics.[8], where appropriate (relative to ecological site potential, etc.)
	Sagebrush cover[9]	Wasatch: ≥14% Low: ≥ 7% Parker: ≥ 17%
	Total shrub cover[6, 8, 9]	Wasatch: ≥19% Low: ≥ 17% Parker: ≥ 22%
	Sagebrush Composition[9]	Wasatch: ≥83% Low: ≥ 36% Parker: ≥ 71%
	Sagebrush height[6, 8, 9]	Wasatch: ≥ 8.7 inches (22 cm) Low: ≥ 12 inches (30 cm) Parker: ≥ 5.5 inches (14 cm)
	Perennial grass cover (such as native bunchgrasses, rhizomatous grasses called for on applicable ecological site	Wasatch: ≥ 8% Low: ≥ 5% Parker: ≥ 4%

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		native bunchgrasses, rhizomatous grasses called for on applicable ecological site descriptions, or other perennial grasses that provide similar functionality)[6, 8, 9]	Emery, Sheeprocks, Ibapah, Uintah north of Highway 40 >5%:Parker Mountain, Panguitch, Uintah south of Highway 40		descriptions, or other perennial grasses that provide similar functionality)[6, 8, 9]	
		Perennial grass and forb height (includes residual grasses)[6, 8, 9]	Provide overhead and lateral concealment from predators.[11]		Perennial grass and forb height (includes residual grasses)[6, 8, 9]	Provide overhead and lateral concealment from predators.[11]
		Perennial forb canopy cover[6, 8, 9]	>5%: Box Elder, Bald Hills, Hamlin Valley, Rich, Carbon, Emery, Sheeprocks, Ibapah, Uintah north of Highway 40 >3%: Parker Mountain, Panguitch, Uintah south of Highway 40		Perennial forb canopy cover[6, 8, 9]	Wasatch: ≥ 4% Low: ≥ 2% Parker: ≥ 1%
Brood-Rearing/Summer (April 15–August 15)[1]				**Brood-Rearing/Summer (April 15–August 15)[1]**		
Cover	% of Seasonal habitat meeting desired condition	>40% of the mapped brood-rearing/summer habitat meets recommended habitat characteristics where appropriate (relative to ecological site potential, etc.)[8]		Cover	% of Seasonal habitat meeting desired condition	>40% of the mapped brood-rearing/summer habitat meets recommended habitat characteristics[8] where appropriate (relative to ecological site potential, etc.)
	Sagebrush cover[6, 8, 9]	>10%			Sagebrush cover[6, 8, 9]	Wasatch: ≥ 17% Low: ≥ 4% Parker: ≥ 16%
	Total shrub cover[6, 8, 9]	10-25%: Box Elder, Bald Hills, Hamlin Valley, Panguitch, Rich, Parker Mountain, Uintah 10-30%: Carbon, Emery, Sheeprocks, Ibapah,			Total shrub cover[6, 8, 9]	Wasatch: ≥ 15% Low: ≥ 10% Parker: ≥ 19%
	Sagebrush height[6, 8, 9]	>12 inches (30 cm): Box Elder, Bald Hills, Hamlin Valley, Sheeprocks, Ibapah >10 inches (25 cm): Rich, Carbon, Emery, Uintah north of			Sagebrush Composition[9]	Wasatch: ≥ 77% Low: ≥ 28% Parker: ≥ 7%
					Sagebrush height[6, 8, 9]	Wasatch: ≥ 8 inches (20 cm) Low: ≥ 10.25 inches (26 cm) Parker: ≥ 4.3 inches (11 cm)
					Perennial grass cover[9]	Wasatch: ≥ 8% Low: ≥ 5% Parker: ≥ 6%
					Perennial forb cover[9]	Wasatch: ≥ 6% Low: ≥ 2% Parker: ≥ 2%
					Riparian areas/mesic meadows	Proper Functioning Condition
					Upland and	Preferred forbs are common with

2015 ARMPA Decision Number	No-Action Alternative			Management Alignment Alternative		
			Highway 40 >8 inches (20 cm): Parker Mountain, Panguitch, Uintah south of Highway 40			
		Perennial grass cover and forbs[6, 8, 9]	>15% (Grass: >10%; Forb: >5%): Box Elder, Rich, Sheeprocks, Ibapah, Parker Mountain, Panguitch, Uintah, Carbon, Emery >15% (Grass: >8%; Forb: >7%): Bald Hills, Hamlin Valley,			
		Riparian areas/mesic meadows	Proper Functioning Condition			
		Upland and riparian perennial forb availability	Preferred forbs are common with several preferred species present[6, 12]			
Winter (November 15–March 15)[1]				**Winter (November 15–March 15)[1]**		
Cover and Food	% of seasonal habitat meeting desired conditions	>80% of the mapped wintering habitat meets winter habitat characteristics where appropriate (relative to ecological site, etc.). [8]		Cover and Food	% of seasonal habitat meeting desired conditions	>80% of the mapped wintering habitat meets winter habitat characteristics [8] where appropriate (relative to ecological site, etc.).
	Sagebrush cover above snow[6, 8,]	>10%			Sagebrush cover above snow[6, 8,]	>10%
	Sagebrush height above snow[6, 8, 9, 13]	>10 inches (25 cm): Box Elder, Bald Hills, Hamlin Valley, Rich, Carbon, Emery, Sheeprocks, Ibapah, Uintah north of Highway 40 >8 inches (20 cm): Parker Mountain, Panguitch, Uintah south of Highway 40			Sagebrush height[9]	Wasatch: ≥ 8.7 inches (22 cm) Low: ≥ 12 inches (30 cm) Parker: ≥ 5.5 inches (14 cm)

[1] Specific dates will be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring and long and/or heavy winter), in coordination with the appropriate State of Utah agency.
[2] Utah Greater Sage-Grouse Working Group 2013
[3] Doherty 2008
[4] Doherty et al. 2010
[5] Holloran and Anderson 2005
[6] Stiver et al. 2015
[7] Baruch-Mordo et al. 2013
[8] Connelly et al. 2000
[9] Unpublished data, Utah Community-Based Conservation Program Greater

[1] Specific dates will be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climatic fluctuations (e.g., early/late spring and long and/or heavy winter), in coordination with the appropriate State of Utah agency.
[2] Utah Greater Sage-Grouse Working Group 2013
[3] Doherty 2008
[4] Doherty et al. 2010
[5] Holloran and Anderson 2005
[6] Stiver et al. 2015
[7] Baruch-Mordo et al. 2013
[8] Connelly et al. 2000
[9] Dahlgren, D. , T. A. Messmer, B. A. Crabb, M. T. Kohl, S. N. Frey, E. Thacker, R. T. Larsen, and R. J. Baxter. (In Review). An empirical approach to refining Greater Sage-Grouse (*Centrocercus urophasianus*) breeding habitat guidelines. *Ecosphere*.
[11] Specific height requirements needed to meet the objective will be set at the time of assessments.
[12] Preferred forbs are listed in Stiver et al. 2015. Overall total forb cover may be greater than that of preferred forb cover, since not all forb species are listed as preferred.

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	Sage-grouse Statewide Database, Utah State University, Logan, Utah and Brigham Young University, Provo, Utah. Summarization and analysis of nesting and brood-rearing habitat characteristics from data collected through Utah State University and Brigham Young University research efforts. Researchers located the nest and brood sites using radio-marked telemetry methods. Shortly after the site was used by the marked bird (after hatch or use by a brood), vegetation characteristics on the site were measured using the line intercept method for shrub canopy cover and Daubenmire frames for herbaceous cover. Researchers across the various study areas used methods that followed the guidelines identified in Connelly et al. (2003). [10] Sagebrush plants that are more tree or columnar shaped provide less protective cover near the ground than sagebrush plants with a spreading shape (Stiver et al. 2015 *In Press*). Some sagebrush plants are naturally columnar (e.g., Great Basin big sagebrush) and a natural part of the plant community. However, a predominance of columnar shape arising from animal impacts may warrant management investigation or adjustments at site-specific scales. [11] Specific height requirements needed to meet the objective will be set at the time of watershed assessments. [12] Preferred forbs are listed in Stiver et al. 2015 *In Press*. Overall total forb cover may be greater than that of preferred forb cover, since not all forb species are listed as preferred. [13] The height of sagebrush remaining above the snow depends upon snow depth in a particular year. Intent is to manage for tall, healthy sagebrush stands.	
Issue: Waivers, Exceptions, and Modifications for NSO Stipulations		
MA-MR-3	<u>Unleased Areas within PHMA</u> PHMA will be designated as open to leasing fluid minerals, subject to NSO stipulations. In SFA, there will be no waivers, exceptions, or modifications. In the remainder of PHMA, no waivers or modifications to a fluid mineral lease no-surface-occupancy stipulation will be granted. The Authorized Officer may grant an exception to a fluid mineral lease no-surface-occupancy stipulation only where the proposed action: • Would not have direct, indirect, or cumulative effects on Greater Sage-Grouse or its habitat or • Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to GRSG.	<u>Unleased Areas within PHMA</u> PHMA will be designated as open to leasing fluid minerals, subject to NSO stipulations. Within PHMA seasonal habitat, as identified through an on-the-ground survey, the BLM Authorized Officer may grant an exception to a fluid mineral lease no surface occupancy stipulation only where the proposed action is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and development on the parcel in question would have less of an impact on Greater Sage-Grouse or its habitat than on nearby parcel. This exception must also include measures sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts

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	Exceptions based on conservation gain (ii) may only be considered in (a) PHMA of mixed ownership where federal minerals underlie less than fifty percent of the total surface, or (b) areas of the public lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid federal fluid mineral lease existing as of the date of this ARMPA. Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts. Any exceptions to this lease stipulation may be approved by the Authorized Officer only with the concurrence of the State Director. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other Greater Sage-Grouse expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly. In addition, any lease activities will apply the pertinent management for discretionary activities in PHMA identified in MA-SSS-3 (e.g., mitigation, disturbance cap, minerals/energy density, buffers, seasonal restrictions, and RDFs). Outside PHMA, portions of opportunity areas within 4 miles of a lek that is located in PHMA will be open for leasing with CSU stipulations (avoiding noise and tall structures that could affect adjacent Greater Sage-Grouse use of PHMA).	Within PHMA opportunity areas or non-habitat, the BLM Authorized Officer may grant an exception to a fluid mineral lease no surface occupancy stipulation only where the proposed action: • Occurs in non-habitat that does not provide important connectivity between habitats • Does not impair the function of adjacent seasonal habitats or the life-history or behavioral needs of the Greater Sage-Grouse population from direct and indirect impacts due to project design (e.g., minimize sound, preclude tall structures, require perch deterrents), as demonstrated in the project's NEPA document • Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and development on the parcel in question would have less of an impact on Greater Sage-Grouse or its habitat than on the nearby parcel The BLM Authorized Officer may grant a modification to a fluid mineral lease no surface occupancy stipulation only where an exception is granted, as described above, for the primary disturbance (e.g., well pad, compressor station). A modification to the no surface occupancy stipulation could be considered for the associated infrastructure related to the development that are not individually precluded by other Greater Sage-Grouse actions (e.g., roads, pipelines, power lines). While the no surface occupancy stipulation could be modified for this infrastructure, it must still comply with other Greater Sage-Grouse management contained in MA-SSS-3. The BLM Authorized Officer may grant a waiver to a fluid mineral lease no surface occupancy stipulation if, through the appropriate planning process (i.e., maintenance, amendment) the area is no longer within PHMA. Approved exceptions will be made publically available at least quarterly.

<table>
<tr><th>2015 ARMPA Decision Number</th><th>No-Action Alternative</th><th>Management Alignment Alternative</th></tr>
<tr><td></td><td></td><td>In addition, any lease activities will apply the pertinent management for discretionary activities in PHMA identified in MA-SSS-3 (e.g., mitigation, disturbance cap, minerals/energy density, seasonal restrictions, and RDFs), including if an exception to the NSO is granted.

Outside PHMA, portions of opportunity areas within the buffer distances identified in Appendix B of a lek that is located in PHMA will be open for leasing with CSU stipulations (avoiding noise and tall structures that could affect adjacent Greater Sage-Grouse use of PHMA).</td></tr>
<tr><td colspan="3">Issue: General Habitat Management Areas in Utah</td></tr>
<tr><td>Objective SSS-2</td><td>In all Greater Sage-Grouse habitat, manage activities… [Remainder of this action is unchanged from the 2015 ARMPA.]</td><td>In PHMA, manage activities… [Remainder of this action is unchanged from the 2015 ARMPA.]</td></tr>
<tr><td>Objective SSS-3</td><td>In all Greater Sage-Grouse habitat, where sagebrush… [Remainder of this action is unchanged from the 2015 ARMPA.]</td><td>In PHMA, where sagebrush… [Remainder of this action is unchanged from the 2015 ARMPA.]</td></tr>
<tr><td>MA-SSS-1</td><td>Identify PHMA and GHMA as follows (Figure 2-1, Habitat Management Areas [Appendix A, 2015 ROD/ARMPA Maps]):

<table>
<tr><th rowspan="3">Population Area</th><th colspan="6">Acres</th></tr>
<tr><th colspan="3">PHMA</th><th colspan="3">GHMA</th></tr>
<tr><th>Total Surface[1]</th><th>BLM Surface[2]</th><th>Split Estate[3]</th><th>Total Surface[1]</th><th>BLM Surface[2]</th><th>Split Estate[3]</th></tr>
<tr><td>Uintah</td><td>566,800</td><td>263,200</td><td>140,800</td><td>991,500</td><td>294,200</td><td>81,700</td></tr>
<tr><td>Carbon [4]</td><td>260,100</td><td>43,500</td><td>124,200</td><td>198,700</td><td>82,800</td><td>19,200</td></tr>
<tr><td>Emery</td><td>85,500</td><td>100</td><td>84,000</td><td>11,400</td><td>0</td><td>9,700</td></tr>
<tr><td>Parker Mtn.</td><td>741,300</td><td>214,200</td><td>378,300</td><td>12,900</td><td>0</td><td>7,400</td></tr>
<tr><td>Panguitch</td><td>343,900</td><td>163,200</td><td>91,000</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bald Hills</td><td>326,400</td><td>259,400</td><td>5,200</td><td>21,200</td><td>8,300</td><td>1,200</td></tr>
<tr><td>Hamlin Valley</td><td>143,700</td><td>101,500</td><td>6,600</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Sheeprocks</td><td>534,600</td><td>381,100</td><td>111,200</td><td>296,500</td><td>52,800</td><td>15,300</td></tr>
<tr><td>Ibapah</td><td>88,800</td><td>48,000</td><td>700</td><td>10,800</td><td>10,100</td><td>0</td></tr>
<tr><td>Box Elder</td><td>1,135,700</td><td>439,200</td><td>112,000</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Rich</td><td>1,051,000</td><td>167,000</td><td>178,400</td><td>197,900</td><td>300</td><td>20,600</td></tr>
<tr><td>Lucerne</td><td>0</td><td>0</td><td>0</td><td>37,500</td><td>0</td><td>11,500</td></tr>
<tr><td>Strawberry</td><td>161,500</td><td>0</td><td>40,900</td><td>20,600</td><td>0</td><td>500</td></tr>
</table></td><td>Identify PHMA as follows (Figure 2-1, Habitat Management Areas [Appendix A, 2015 ROD/ARMPA Maps]):

<table>
<tr><th rowspan="2">Population Area</th><th colspan="3">Acres</th></tr>
<tr><th colspan="3">PHMA</th></tr>
<tr><th>Total Surface[1]</th><th>BLM Surface[2]</th><th>Split Estate[3]</th></tr>
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<tr><td>Carbon [4]</td><td>260,100</td><td>43,500</td><td>124,200</td></tr>
<tr><td>Emery</td><td>85,500</td><td>100</td><td>84,000</td></tr>
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<tr><td>Panguitch</td><td>343,900</td><td>163,200</td><td>91,000</td></tr>
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<tr><td>Ibapah</td><td>88,800</td><td>48,000</td><td>700</td></tr>
<tr><td>Box Elder</td><td>1,227,800</td><td>439,200</td><td>195,800</td></tr>
<tr><td>Rich</td><td>1,015,400</td><td>167,000</td><td>153,700</td></tr>
<tr><td>Lucerne</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Strawberry</td><td>161,500</td><td>0</td><td>40,900</td></tr>
<tr><td>Statewide[5]</td><td>5,495,800</td><td>2,080,400</td><td>1,332,400</td></tr>
</table>
[1] Acreage associated with total PHMA polygon, regardless of land</td></tr>
</table>

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	Statewide 5,439,300 2,080,400 1,273,300 1,799,000 448,500 167,100 *% PHMA/ GHMA* 75% 80% 85% 25% 20% 15% [1] Acreage associated with total PHMA/GHMA polygon, regardless of land ownership. [2] Acreage within PHMA/GHMA where the BLM has managerial authority on the surface estate. [3] Acreage where the surface and mineral estates are owned or administered by separate entities. These acres show where the surface estate is not BLM (e.g., private, state, tribal, and Forest Service), but that have a federal mineral estate administered by the BLM. Most minerals decisions apply to the combination of the BLM surface and mineral estates. [4] The 41,200 acres of National Forest System lands in the Anthro Mountain area would be managed as neither PHMA nor GHMA. These areas would be identified as "Anthro Mountain." In the BLM's RMPPA, these areas are considered split-estate, where the BLM administers the mineral estate.	ownership. [2] Acreage within PHMA where the BLM has managerial authority on the surface estate. [3] Acreage where the surface and mineral estates are owned or administered by separate entities. These acres show where the surface estate is not BLM (e.g., private, state, tribal, and Forest Service), but that have a federal mineral estate administered by the BLM. Most minerals decisions apply to the combination of the BLM surface and mineral estates. [4] The 41,200 acres of National Forest System lands in the Anthro Mountain area would not be managed PHMA. These areas would be identified as "Anthro Mountain." In the BLM's RMPPA, these areas are considered split-estate, where the BLM administers the mineral estate. [5] PHMA were mapped to exclude all incorporated towns/cities.
MA-SSS-5	In GHMA, apply the following management to meet the objective of a net conservation gain for discretionary actions that can result in habitat loss and degradation: A- Existing Management: Implement Greater Sage-Grouse management actions included in the existing RMPs and project-specific mitigation measures associated with existing decisions. B- Net Conservation Gain: In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species, including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Exceptions to net conservation gain for Greater Sage-Grouse may be made for vegetation treatments to benefit Utah prairie dog. Mitigation will be conducted according to the mitigation framework contained in Appendix F.	No similar action. [GHMA would not be designated.]

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	C- Buffers: In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will apply the lek buffer-distances identified in the US Geological Survey Report Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review (Open File Report 2014-1239; Manier et al. 2014) in accordance with Appendix B. D- Required Design Features/Best Management Practices: In GHMA, apply the fluid mineral RDFs that are associated with GHMA identified in Appendix C when authorizing/permitting site-specific fluid mineral development activities/projects. The applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects and/or may require slight variations. All variations in RDFs will require that at least one of the following be demonstrated in the NEPA analysis associated with the project/activity: • A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable • An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for Greater Sage-Grouse or its habitat • A specific RDF will provide no additional protection to Greater Sage-Grouse or its habitat	
MA-SSS-6	Sage-Grouse Management Outside PHMA/GHMA Proposed projects within State of Utah Sage-Grouse Management Areas (SGMA) and USFWS priority areas for conservation (PAC), as well as adjacent to PHMA outside these	Sage-Grouse Management Outside PHMA Outside PHMA, implement Greater Sage-Grouse management actions included in the RMPs and project-specific mitigation measures associated with decisions that pre-dated the 2015

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	areas, will consider impacts on Greater Sage-Grouse and implement measures to mitigate impacts when preparing site-specific planning and environmental compliance documents. Outside of PHMA, prior to site-specific authorizations, the BLM will evaluate habitat conditions and may require surveys to determine if the project area contains Greater Sage-Grouse habitat (FLPMA, 43 United States Code (USC) 1701 Sec. 201 (a); BLM Manual 6840.04 D3; BLM-M-6840.04 E2). Surveys will be required prior to authorizing discrete anthropogenic disturbances within 4 miles of an occupied lek that is located in PHMA, but only in existing sagebrush. If an area is determined to be Greater Sage-Grouse habitat (e.g., nesting, brood-rearing, winter, transition), mitigation will be considered as part of the project level NEPA analysis and will be attached as conditions of approval to new discretionary actions, if deemed necessary to protect the habitat (BLM Manual 6840.04 D 5). Measures that may be considered include those identified in Appendix C. Outside of PHMA, but within SGMAs and PACs, avoid removal of sagebrush and minimize development that creates a physical barrier to Greater Sage-Grouse movement; these areas may be used by Greater Sage-Grouse to connect to other populations or seasonal habitat areas. Exceptions shall be made for vegetation treatments to benefit Utah prairie dog, where the landscape will be managed for both species. Outside of PHMA, but within SGMAs and PACs, consider noise and permanent structure stipulations around leks. Outside PHMA, portions of State of Utah opportunity areas (see Final EIS Map 2.4) within 4 miles of a lek that is located in PHMA will be managed with the following allocations: • Fluid minerals will be open for leasing with CSU stipulations (noise and tall structures).	amendments. Proposed projects within State of Utah Sage-Grouse Management Areas (SGMA) and USFWS priority areas for conservation (PAC), as well as adjacent to PHMA outside these areas, will consider impacts on Greater Sage-Grouse and may implement measures to mitigate impacts on Greater Sage-Grouse populations within adjacent PHMA when preparing site-specific planning and environmental compliance documents. Outside of PHMA, but within SGMAs and PACs, avoid removal of sagebrush and minimize development that creates a physical barrier to Greater Sage-Grouse movement; these areas may be used by Greater Sage-Grouse to connect to other populations or seasonal habitat areas. Exceptions shall be made for vegetation treatments to benefit Utah prairie dog, where the landscape will be managed for both species. Outside of PHMA, but within SGMAs and PACs, consider noise and permanent structure stipulations around leks. Outside PHMA, portions of State of Utah opportunity areas (see Final EIS Map 2.4), after analyzing the impacts of any allocations using the buffer distances identified in Appendix B of a lek that is located in PHMA will be managed with the following allocations: • Fluid minerals will be open for leasing with CSU stipulations (noise and tall structures). • Lands ROWs, permits, and leases will apply avoidance criteria for noise and tall structures. Avoid siting wind energy development in opportunity areas within the buffer distances identified in Appendix B from occupied Greater Sage-Grouse leks that are in PHMA, if the lek buffer analysis as identified in Appendix B shows that siting wind energy development in opportunity areas will impact lek persistence within PHMA. Outside of PHMA, avoid and minimize effects from discrete

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	• Lands ROWs, permits, and leases will be avoided, applying avoidance criteria for noise and tall structures. Do not site wind energy development in opportunity areas within 5 miles from occupied Greater Sage-Grouse leks that are in PHMA. Outside of PHMA, avoid and minimize effects from discrete anthropogenic disturbances in areas that have been treated with the intent of improving or creating new GRSG habitat. Evaluate conditions in the treated area to determine if it is providing habitat for GRSG and if additional measures are necessary to protect the habitat.	anthropogenic disturbances in areas that have been treated with the intent of improving or creating new Greater Sage-Grouse habitat. Evaluate conditions in the treated area to determine if it is providing habitat for Greater Sage-Grouse and if additional measures are necessary to protect the habitat. Outside of PHMA, provide that acres of occupied Greater Sage-Grouse habitat lost to habitat degradation actions (Appendix C, Table C.2) are replaced by creating/improving Greater Sage-Grouse habitat within PHMA.
MA-FIRE-8	PHMA will be viewed as more valuable than GHMA when priorities are established. When suppression resources are widely available, maximum efforts will be placed on limiting fire growth in GHMA polygons as well. These priority areas will be further refined following completion of the Greater Sage-Grouse Landscape Wildland Fire Invasive Species Habitat Assessments described in Appendix H. In GHMA or areas where treatment/seeding has occurred to improve habitat, prioritize suppression where wildfires threaten adjacent PHMA.	PHMA will be viewed as more valuable than non-PHMA when priorities are established. When suppression resources are widely available, maximum efforts will be placed on limiting fire growth outside and adjacent to PHMA polygons as well. These priority areas will be further refined following completion of the Greater Sage-Grouse Landscape Wildland Fire Invasive Species Habitat Assessments described in Appendix H. Outside PHMA or in areas where treatment/seeding has occurred to improve habitat, prioritize suppression where wildfires threaten adjacent PHMA.
MA-LG-1	PHMA and GHMA will be available… [Remainder of this action is unchanged from the 2015 ARMPA.]	No similar action. [Meaning the presence of Greater Sage-Grouse habitat management areas does not affect the determination of whether or not an area is available for livestock grazing or the active AUMs.]
MA-WHB-2	[Remainder of this action is unchanged from the 2015 ARMPA.]…The priorities for conducting assessments are: 1. HMAs containing PHMA; 2. HMAs containing only GHMA; 3. HMAs containing sagebrush habitat outside of PHMA and GHMA mapped habitat; and 4. HMAs without Greater Sage-Grouse habitat.	[Remainder of this action is unchanged from the 2015 ARMPA.]…The priorities for conducting assessments are: 1. HMAs containing PHMA; 2. HMAs containing sagebrush habitat outside of PHMA mapped habitat; and 3. HMAs without Greater Sage-Grouse habitat.

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MA-MR-1 Mineral Exploration	[Remainder of this action is unchanged from 2015 ARMPA]… In areas where leasing, permitting, etc. is still available, minerals exploration shall be subject to the pertinent management for discretionary activities in PHMA (MA-SSS-3) and GHMA (MA-SSS-5).	[Remainder of this action is unchanged from the 2015 ARMPA.]… In areas where leasing, permitting, etc. is still available, minerals exploration shall be subject to the pertinent management for discretionary activities in PHMA (MA-SSS-3).
MA-MR-4 Unleased Federal Fluid Mineral Estate	<u>Unleased Areas within GHMA</u> Manage fluid mineral leasing in GHMA as follows (Figure 2-4): • Open to leasing, subject to standard stipulations: 188,600 acres • Open to leasing, subject to CSU and/or TL stipulations: 261,300 acres • Open to leasing, subject to NSO stipulations: 32,700 acres • Closed to leasing: 28,400 acres • Planning decision not mapped: 104,600 acres In GHMA, new development of fluid mineral leases could be considered if they apply the pertinent management for discretionary activities in GHMA identified in MA-SSS-5.	No similar action. [Since GHMA is not mapped there would be no polygons within which to calculate acres; however, because MA-SSS-5 did not include any allocations in the No-Action Alternative, none of the acres identified in the No-Action Alternative for MA-MR-4 would change.]
MA-MR-7 Leased Federal Fluid Mineral Estate	To the extent consistent with existing lease-rights, apply the pertinent management for discretionary activities in PHMA identified in MA-SSS-3 (e.g., mitigation, disturbance cap, minerals/energy density, buffers, seasonal restrictions, and RDFs) and in GHMA identified in MA-SSS-5 (i.e., mitigation, buffers, and RDFs).	To the extent consistent with existing lease-rights, apply the pertinent management for discretionary activities in PHMA identified in MA-SSS-3 (e.g., mitigation, disturbance cap, minerals/energy density, buffers, seasonal restrictions, and RDFs).
MA-MR-12 Locatable Minerals	[Remainder of this action is unchanged from the 2015 ARMPA.]…To the extent allowable by law, work with claimants to voluntarily apply the pertinent management for discretionary activities in PHMA identified in MA-SSS-3 (e.g., mitigation, disturbance cap, minerals/energy density, buffers, seasonal restrictions, and RDFs) and in GHMA identified in MA-SSS-5 (i.e., mitigation and buffers).	[Remainder of this action is unchanged from the 2015 ARMPA.]…To the extent allowable by law, work with claimants to voluntarily apply the pertinent management for discretionary activities in PHMA identified in MA-SSS-3 (e.g., mitigation, disturbance cap, minerals/energy density, buffers, seasonal restrictions, and RDFs).
MA-MR-14 Saleable Minerals	In GHMA, new mineral material developments can be considered if consistent with the pertinent management for discretionary activities described in MA-SSS-5.	No similar action.

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MA-MR-15 Non-Energy Leaseable Minerals	In GHMA, manage nonenergy leasable minerals on federal lands and non-federal lands with federal mineral interests as follows (Figure 2-7): • Open to leasing consideration—587,400 acres • Closed to leasing—8,200 acres New leasing and development in GHMA can be considered if consistent with the pertinent management for discretionary activities described in MA-SSS-5.	No similar action. [Since GHMA is not mapped there would be no polygons within which to calculate acres; however, because MA-SSS-5 did not include any allocations in the No-Action Alternative, none of the acres identified in the No-Action Alternative for MA-MR-15 would change.]
MA-MR-20 Coal	New leasing for underground mining of coal in GHMA can be considered if consistent with the pertinent management for discretionary activities described in MA-SSS-5.	No similar action.
MA-MR-21 Coal	For coal mining operations on existing leases: In GHMA, new disturbances could be considered if consistent with the pertinent management for discretionary activities described in MA-SSS-5.	No similar action.
MA-MR-24 Mineral Split-Estate	Where the federal government manages the mineral estate in PHMA and GHMA... [Remainder of this action is unchanged from the 2015 ARMPA.] Where the federal government manages the surface and the mineral estate is in non-federal ownership in PHMA and GHMA…[Remainder of this action is unchanged from the 2015 ARMPA.]	Where the federal government manages the mineral estate in PHMA... [Remainder of this action is unchanged from the 2015 ARMPA.] Where the federal government manages the surface and the mineral estate is in non-federal ownership in PHMA…[Remainder of this action is unchanged from the 2015 ARMPA.]
MA-RE-1 Renewable Energy	Manage wind energy development in GHMA as follows: • Open—430,900 acres • Avoided—0 acres • Excluded—17,600 acres New wind ROW authorizations can be allowed in GHMA if they apply the pertinent management for discretionary activities identified in MA-SSS-5.	No similar action. [Since GHMA is not mapped there would be no polygons within which to calculate acres; however, because MA-SSS-5 did not include any allocations in the No-Action Alternative, none of the acres identified in the No-Action Alternative for MA-RE-1 would change.]
MA-LR-7 Rights-of-Way	In GHMA, manage ROWs, permits, and leases as follows (Figure 2-11): • Open—430,900 acres • Avoided—0 acres • Excluded—17,600 acres	No similar action. [Since GHMA is not mapped there would be no polygons within which to calculate acres; however, because MA-SSS-5 did not include any allocations in the No-Action Alternative, none of the acres identified in the No-Action Alternative for MA-LR-7 would change.]

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	New ROWs (including permits and leases) authorizations will be allowed if they apply the pertinent management for discretionary activities in GHMA identified in MA-SSS-5.	
MA-LR-8 Right-of-Way Corridors	In GHMA, retain 74,700 acres of designated ROW corridors as identified on Figure 2-10.	No similar action. [Since GHMA is not mapped there would be no polygons within which to calculate acres; however, because MA-SSS-5 did not include any designated corridors in the No-Action Alternative, none of the acres identified in the No-Action Alternative for MA-LR-8 would change.]
MA-LR-9 Land Tenure	Lands classified as PHMA and GHMA for Greater Sage-Grouse will be retained in federal management unless… [Remainder of this action is unchanged from the 2015 ARMPA.]	Lands classified as PHMA for Greater Sage-Grouse will be retained in federal management unless… [Remainder of this action is unchanged from the 2015 ARMPA.]
MA-LR-11 Recommended Withdrawal	[Remainder of this action is unchanged from the 2015 ARMPA.]…federal lands or non-federal lands with federal mineral interests within PHMA or GHMA that are not already withdrawn or recommended for withdrawal will be available for locatable mineral entry.	[Remainder of this action is unchanged from the 2015 ARMPA.]...federal lands or non-federal lands with federal mineral interests within PHMA that are not already withdrawn or recommended for withdrawal will be available for locatable mineral entry.
MA-TTM-1 OHV Area Designations	Manage off-highway vehicle (OHV) use in Greater Sage-Grouse habitat as follows: • Open to cross-country use: 525 acres (one area each in Parker Mountain and Uintah Population Areas) • Limited to existing routes: 1,274,700 acres • Limited to designated routes: 1,220,500 acres • Closed: 33,200 acres	Manage off-highway vehicle (OHV) use in Greater Sage-Grouse habitat as follows: • Open to cross-country use: 525 acres in PHMA (one area each in Parker Mountain and Uintah Population Areas); two areas outside of PHMA in the Sheeprocks Population Area, associated with 5-Mile Pass (6,320 acres) and Little Sahara Sand Dunes 7,900 acres)) • Limited to existing routes: 1,260,500 acres • Limited to designated routes: 1,220,500 acres • Closed: 33,200 acres
MA-TTM-2 OHV Area Designations	PHMA and GHMA that do not have designated routes in a Travel Management Plan will be managed as limited to existing routes until a Travel Management Plan designates routes (unless they are already designated as limited to designated routes or closed to OHV use).	PHMA that does not have designated routes in a Travel Management Plan will be managed as limited to existing routes until a Travel Management Plan designates routes (unless they are already designated as limited to designated routes or closed to OHV use). [Two areas that were GHMA previously will remain limited to existing routes, though they would no longer be GHMA: 7,400 acres in the Bald Hills area, and 13,500 acres in the Fillmore Field Office portions of Sheeprocks area, east of Highway 6. Two other areas of former GHMA would return to being open to

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		cross-country use – 6,320 acres in the 5-Mile Pass area and 7,900 acres in the Little Sahara Recreation Area.]
MA-TTM-10 Temporary closures	In PHMA and GHMA, temporary closures will be considered in accordance with…[Remainder of this action is unchanged from the 2015 ARMPA.]	In PHMA, temporary closures will be considered in accordance with…[Remainder of this action is unchanged from the 2015 ARMPA.]
Issue: Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA		
MA-SSS-1	The PHMA and GHMA objectives and management actions would apply to existing sagebrush areas and areas with ecological sagebrush potential within the respective PHMA and GHMA polygons. In the mapped PHMA and GHMA there may be areas that lack the principle habitat components necessary for Greater Sage-Grouse, including but not limited to rock outcrops, alkaline flats, and pinyon-juniper ecological sites. These are areas that do not have existing sagebrush or ecological potential to contain sagebrush. These areas of non-habitat may be identified during site-specific project review by agency biologists, in discussion with the appropriate State of Utah agency. Because of the importance of PHMA to conserve, enhance and restore Greater Sage-Grouse and its habitat, objectives and management actions will apply to all the areas within the respective PHMA polygons. The GHMA objectives and management actions will apply to the areas of identified non-habitat within the GHMA polygons unless **all** the following conditions are met: • the non-habitat does not provide important connectivity between areas with existing or potential habitat; • all direct and indirect impacts that impair the function of adjacent seasonal habitats or the life-history or behavioral needs of the Greater Sage-Grouse population are eliminated through project design (e.g., minimize sound, preclude tall structures, require perch deterrents), as demonstrated in the project's NEPA document. Exceptions in non-habitat may be approved by the , but only with the concurrence of one level of delegated authority above the Authorized Officer.	The PHMA objectives and management actions apply to ecological sites that currently provide Greater Sage-Grouse habitat within the respective PHMA polygons, as well as areas with ecological potential for Greater Sage-Grouse habitat that have not crossed an ecological threshold to a different stable non-Greater Sage-Grouse habitat vegetation community. Mapped PHMA may also include areas that lack the principle habitat components necessary for Greater Sage-Grouse, including but not limited to rock outcrops, alkaline flats, pinyon-juniper ecological sites, and areas that have crossed an ecological threshold to a different stable non-Greater Sage-Grouse habitat vegetation community (e.g., monoculture cheatgrass, pinyon/juniper woodland). These are areas that do not contain sagebrush or other vegetation necessary for the various Greater Sage-Grouse seasonal habitats. These areas of non-habitat may be identified during site-specific project review by agency biologists, in discussion with the appropriate State of Utah agency. The PHMA objectives and management actions will apply to the areas of identified non-habitat within the PHMA polygons unless **both** the following conditions are met: • the non-habitat does not provide important connectivity between occupied habitats; and • direct and indirect impacts that impair the function of adjacent seasonal habitats or the life-history or behavioral needs of the Greater Sage-Grouse population are eliminated through project design (e.g., minimize sound, preclude tall structures, require perch deterrents), as demonstrated in the project's NEPA document.

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	Any exception granted based on the above criteria would only apply to the specific project-level authorization. Proposed projects in the same area would need to undergo individual analysis to confirm the criteria are met prior to subsequent authorizations. Excepting a site-specific project from compliance with Greater Sage-Grouse management in an area of non-habitat would not change the boundaries of PHMA or GHMA.	Any exception granted based on the above criteria would only apply to the specific project-level authorization. Proposed projects in the same area would need to undergo individual analysis to confirm the criteria are met prior to subsequent authorizations. Excepting a site-specific project from compliance with Greater Sage-Grouse management in an area of non-habitat would not change the boundaries of PHMA.
Same language added to the following actions: MA-MR-6 (Leased Federal Fluid Mineral Estate) MA-MR-14 (Saleable Minerals) MA-MR-15 (Non-Energy Leasable Minerals)	No similar action	Inserted the following text into the actions noted to the left: (see MA-SSS-1 language related to placement of development in non-habitat portions of PHMA)
Issue: Application of Lek Buffers		
MA-SSS-3H	In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will apply the lek buffer-distances identified in the US Geological Survey Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239	In undertaking BLM management actions, and consistent with valid and existing rights and applicable law in authorizing third-party actions, the BLM will assess and address impacts within the lek buffer-distances identified in the US Geological Survey Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239
MA-SSS-6	Outside PHMA, portions of State of Utah opportunity areas (see Final EIS Map 2.4) within 4 miles of a lek that is located in PHMA will be managed with the following allocations… [Remainder of this action is unchanged from the 2015 ARMPA.]	Outside PHMA, portions of State of Utah opportunity areas (see Final EIS Map 2.4), after analyzing the impacts of any allocations using the buffer distances identified in Appendix B of a lek that is located in PHMA will be managed with the following allocations… [Remainder of this action is unchanged from the 2015 ARMPA.]

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MA-SSS-6	Do not site wind energy development in opportunity areas within 5 miles from occupied Greater Sage-Grouse leks that are in PHMA.	Avoid siting wind energy development in opportunity areas within the buffer distances identified in Appendix B from occupied Greater Sage-Grouse leks that are in PHMA, if the lek buffer analysis as identified in Appendix B shows that siting wind energy development in opportunity areas will impact lek persistence within PHMA.
MA-MR-3	Outside PHMA, portions of opportunity areas within 4 miles of a lek that is located in PHMA will be… [Remainder of this action is unchanged from the 2015 ARMPA.]	Outside PHMA, portions of opportunity areas within the buffer distances identified in Appendix B of a lek that is located in PHMA will be… [Remainder of this action is unchanged from the 2015 ARMPA.]
MA-RE-1	Do not site wind energy development in opportunity areas within 5 miles from occupied Greater Sage-Grouse leks that are in PHMA.	Avoid siting wind energy development in opportunity areas within the buffer distances identified in Appendix B from occupied Greater Sage-Grouse leks that are in PHMA.
Issue: Adaptive Management		
MA-SSS-7	<u>Adaptive Management</u> This plan establishes soft and hard triggers for both Greater Sage-Grouse populations and habitat. The specific triggers and additional detail on the management responses are identified in Appendix I, Adaptive Management. The hard and soft trigger data will be analyzed as soon as it becomes available after the signing of the ROD and then at a minimum, analyzed annually thereafter. If monitoring indicates the soft trigger is met, the BLM will determine if there is a specific cause or causes that are contributing to the decline. If it is determined that the decline is related to a natural population variation, no specific management actions will be required. However, if BLM management actions are determined to cause or contribute to the decline, the BLM manager will apply measures within their implementation-level discretion to mitigate the decline of populations and/or habitats to the area where the trigger has been met. These measures will apply more conservative or restrictive implementation conservation conditions, terms, or decisions within the agencies' discretion to mitigate the decline of populations and/or habitats. If monitoring indicates the hard trigger is met, a set of specific management actions from the BLM Proposed Plan will	<u>Adaptive Management</u> This plan establishes soft and hard triggers for both Greater Sage-Grouse populations and habitat. The specific triggers and additional detail on the management responses are identified in Appendix I, Adaptive Management. The hard and soft trigger data will be analyzed annually. If monitoring indicates the soft trigger is met, the BLM will review available and pertinent data, in coordination with Greater Sage-Grouse biologists from multiple agencies including the appropriate State of Utah agency, USFS, USFWS, and/or NRCS, to determine the causal factor(s) for the declines within six months of identifying that the trigger has been met. If it is determined that the decline is related to a natural population variation, no specific management actions will be required; however, if BLM management actions are determined to cause or contribute to the decline, the BLM manager will apply measures within their implementation-level discretion to mitigate the decline of populations and/or habitats to the area where the trigger has been met. These measures will apply more conservative or restrictive implementation conservation conditions, terms, or decisions within the agencies' discretion to mitigate the decline of populations and/or habitats.

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	immediately be replaced with or adjusted by different management actions in the area where the trigger has been met. Table I.1 of Appendix I identifies the management actions from the BLM Proposed Plan, and the corresponding new management actions that will be immediately implemented to the specific area in the event a hard trigger is met. In addition to these specific changes, the BLM will review available and pertinent data for the area, in coordination Greater Sage-Grouse biologists from multiple agencies including the appropriate State of Utah agency, USFWS, and NRCS, to determine the causal factor(s) and implement a corrective strategy. The final strategy associated with a hard trigger being met will be the changes identified in Table I.1 of Appendix I, and may also include the need to further amend or revise the RMP to address the situation and modify management accordingly, for the area where the trigger was met.	If monitoring indicates the hard trigger is met, the BLM will review available and pertinent data, in coordination with Greater Sage-Grouse biologists from multiple agencies including the appropriate State of Utah agency, USFS, USFWS, and/or NRCS, to determine the causal factor(s) for the declines. The BLM and the team will also identify measures needed to address the causal factor(s) and develop a corrective strategy for the area where the trigger has been met. The corrective strategy would include the applicable changes identified in Table I.1 of Appendix I that address the causal factor, and could also include other management actions, which may require the need to amend the RMP to address the situation and modify management. If determining the causal factor and development of a corrective strategy is not completed within six months of documenting that the trigger has been met, all the plan level responses identified in Table I.1 will be applied until the causal factor analysis is complete. Upon completion of the causal factor analysis any responses that do not address the causal factor(s) would be removed. In developing a corrective strategy, managers may select changes in management that are identified in Table I.1, Specific Management Responses that have already been analyzed for implementation. This table also identifies which decision from the BLM RMPA would be changed. The management identified in the corrective strategy would be implemented until ten-year population trends reflect natural fluctuations anticipated for the area. The BLM would determine the area reflects natural fluctuations in coordination with Greater Sage-Grouse biologists from multiple agencies including Forest Service, UDWR, USFWS, and/or NRCS. Upon determination, the management would revert to the RMPA. If all the leks in an area that has met a hard trigger are not active for ten years, becoming unoccupied by definition, the PHMA designation and all its associated management would be removed since there is no longer a Greater Sage-Grouse population for which management should be prioritized.

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Issue: Prioritization of Mineral Leasing		
Objective MR-1	Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of Greater Sage-Grouse, priority will be given to development in non-habitat areas first and then in the least suitable habitat for Greater Sage-Grouse. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR, Part 3162.3-1(h).	No similar objective.
Issue: Land Disposal and Exchanges		
MA-MR-10	In PHMA, identify areas where acquisitions (including federal mineral rights) or conservation easements, will benefit Greater Sage-Grouse habitat.	No similar action.
MA-LR-9	Lands classified as PHMA and GHMA for Greater Sage-Grouse will be retained in federal management (Figure 2-12, Land Tenure [Appendix A]) unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will provide a net conservation gain to the Greater Sage-Grouse or (2) the agency can demonstrate that the disposal of the lands, including land exchanges, will have no direct or indirect adverse impact on conservation of the Greater Sage-Grouse.	Lands classified as PHMA for Greater Sage-Grouse will be retained in federal management (Figure 2-12, Land Tenure [Appendix A]) unless: (1) the agency can demonstrate that disposal of the lands, including land exchanges, will improve the condition of GRSG habitat or (2) the agency can demonstrate that the disposal of the lands, including land exchanges, will not compromise the persistence of Greater Sage-Grouse populations within a PHMA.
Issue: Managing Habitats to Manage Predation		
MA-SSS-3D	No similar action.	When conducting habitat treatments, remove trees that have corvid nests that could impact PHMA nesting and brood-rearing habitat when in compliance with the Migratory Bird Treaty Act (e.g., when the nest is unoccupied and outside of migratory bird nesting season).
MA-VEG-2	No similar action.	When conducting conifer treatments: Remove trees with corvid nests when in compliance with the Migratory Bird Treaty Act (e.g., when unoccupied and outside of migratory bird nesting season).
Issue: Burial of Transmission Lines		
MA-LR-2	In PHMA, high voltage transmission lines (100 kilovolt or greater) will be avoided if possible. If avoidance is not possible, they will be placed in designated corridors where technically	In PHMA, high voltage transmission lines (100 kilovolt or greater) will be avoided if possible. If avoidance is not possible, they will be placed in designated corridors where technically

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	feasible. Where not technically feasible, lines should be located adjacent to existing infrastructure, unless using a different alignment better minimizes impacts on Greater Sage-Grouse. New ROWs constructed adjacent to existing infrastructure will be constructed as close as technically feasible to existing infrastructure to limit disturbance to the smallest footprint. In PHMA outside of designated corridors, new transmission lines must be buried where technically feasible. Where burying transmission lines is not technically feasible: • new transmission lines must be located adjacent to existing infrastructure, unless using a different alignment better minimizes impacts on Greater Sage-Grouse; and • they will be subject to Greater Sage-Grouse ROW avoidance criteria described above.	feasible. Where not technically feasible, lines should be located adjacent to existing infrastructure, unless using a different alignment or construction method (e.g., burial) better minimizes impacts on Greater Sage-Grouse. New ROWs constructed adjacent to existing infrastructure will be constructed as close as technically feasible to existing infrastructure to limit disturbance to the smallest footprint.
MA-LR-5	… In PHMA, during renewal, amendment or reauthorization of existing permits, work with existing ROW holders to mitigate impacts of existing ROW infrastructure. Where technically feasible, require ROW holders to bury or relocate existing power lines to minimize long-term impacts on Greater Sage-Grouse habitat. Where the potential long-term impacts of relocating or burying the line will be greater than the existing impacts, do not pursue the mitigation. If relocation or burying is not feasible or will result in severe short-term or greater long-term impacts on Greater Sage-Grouse habitat, incorporate additional terms and conditions in the ROW authorization for protection of Greater Sage-Grouse habitat. … [Remainder of this action is unchanged from the 2015 ARMPA.]	…In PHMA, during renewal, amendment or reauthorization of existing permits, work with existing ROW holders to mitigate impacts of existing ROW infrastructure on Greater Sage-Grouse (e.g., predator deterrents, maintenance schedules, relocation, burial, etc.). Where the potential long-term impacts of mitigation will be greater than the existing impacts, do not pursue the mitigation.… [Remainder of this action is unchanged from the 2015 ARMPA.]
Issue: Modifying Habitat Management Area Boundaries		
MA-SSS-1	The BLM will apply these the goals, objectives, and management actions where the agency has discretion to implement them; the actions do not apply in areas where the BLM does not administer the surface or mineral estate. Minor adjustments to PHMA/GHMA external boundaries can be made if BLM biologists, in coordination with the appropriate State of Utah agency, determine site-specific conditions warrant	The BLM will apply these the goals, objectives, and management actions where the agency has discretion to implement them; the actions do not apply in areas where the BLM does not administer the surface or mineral estate. The PHMA boundaries are not intended to represent a survey-grade boundary and are not expected to be used exclusively at a project-level. In accordance with the adaptive management

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	such changes to more accurately depict existing or potential Greater Sage-Grouse habitat. The appropriate planning process (i.e., plan maintenance or plan amendment) will be used, as determined on a case-by-case basis considering site-specific issues. See additional information and protocol on adjusting occupied habitat and PHMA/GHMA boundaries in Appendix K, Greater Sage-Grouse Habitat Baseline and Habitat Update Protocol.	framework and existing law, regulation and policy, inventories will continue to be conducted to provide information on Greater Sage-Grouse habitat and distribution (FLPMA, 43 USC 1701 Sec. 201 (a), BLM Manual 6840 .04 D 3; BLM-M-6840 .04 E 2). Prior to considering proposed actions within PHMA, a field investigation should be conducted by a qualified biologist in collaboration with federal and state biologists. To this end, additional site-specific information associated with local surveys could result in a more precise delineation of habitat management areas. If in the review of a proposed action, there are discrepancies between the PHMA maps and the on-the-ground conditions, the on-the-ground information should be used to determine where the management would be applied. Minor adjustments to PHMA external boundaries (increases or decreases) can be made if BLM biologists, in coordination with the appropriate State of Utah agency, determine site-specific conditions warrant such changes to more accurately depict existing or potential Greater Sage-Grouse habitat. The appropriate planning process (i.e., plan maintenance or plan amendment) will be used, as determined on a case-by-case basis considering site-specific issues. See additional information and protocol on adjusting occupied habitat and PHMA boundaries in Appendix K, Greater Sage-Grouse Habitat Baseline and Habitat Update Protocol.
Issue: Modifying Mitigation Standard		
Objective SSS-2	In all Greater Sage-Grouse habitat, manage activities that result in habitat loss and degradation to provide a net conservation gain of Greater Sage-Grouse habitat. Exceptions to net conservation gain for Greater Sage-Grouse shall be made for vegetation treatments to benefit Utah prairie dog.	In PHMA, manage activities that result in habitat loss and degradation to improve the condition of Greater Sage-Grouse habitat. Exceptions to this mitigation standard for Greater Sage-Grouse shall be made for vegetation treatments to benefit Utah prairie dog.
MA-SSS-3A	A- Net Conservation Gain: In all Greater Sage-Grouse habitat, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third-party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species,	A- Mitigation Strategy: In PHMA, when undertaking BLM management actions, and, consistent with valid existing rights and applicable law, when authorizing third-party actions that result in habitat loss and degradation, the BLM will require and ensure mitigation that improves the condition of Greater Sage-Grouse habitat,

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Exceptions to net conservation gain for Greater Sage-Grouse shall be made for vegetation treatments to benefit Utah prairie dog. Mitigation will be conducted according to the mitigation framework contained in Appendix F, Mitigation Strategy: Utah Greater Sage-Grouse RMPA. Consider the likelihood of development of not-yet-constructed surface-disturbing activities – as defined in Table D.2 of the Monitoring Framework (Appendix D)−under valid existing rights prior to authorizing new projects in PHMA.	including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, or compensating for impacts by applying beneficial mitigation actions. Exceptions to this standard may be made for vegetation treatments to benefit Utah prairie dog. The BLM, in coordination with the State of Utah, will develop a Mitigation Strategy to guide the application of the mitigation approach and hierarchy. The Strategy should be based on the State-level Greater Sage-Grouse mitigation approach to the extent is it consistent with other agency regulations and policies. The BLM will include the avoidance, minimization, and compensatory recommendations from the Mitigation Strategy in one or more of the NEPA analysis alternatives, and the necessary measures needed to improve the condition of Greater Sage-Grouse habitat will be applied. The Mitigation Strategy will be implemented to provide an improvement to Greater Sage-Grouse habitat at a state level (as opposed to a WAFWA Management Zone, a Field Office, or a Forest), in collaboration with applicable partners (e.g., federal, tribal, and state agencies). Consider the likelihood of development of not-yet-constructed surface-disturbing activities – as defined in Table D.2 of the Monitoring Framework (Appendix D)−under valid existing rights prior to authorizing new projects in PHMA.
Issue: Changing Grazing Systems and Prioritization of Grazing Permits		
Objective SSS-4	Within PHMA, increase the amount and functionality of seasonal habitats by: Reducing the extent of annual grasslands.	Within PHMA, increase the amount and functionality of seasonal habitats by: Reducing the extent of invasive annual grasslands.
MA-VEG-1	[Remainder of this action is unchanged from the 2015 ARMPA.]…treat areas to maintain and expand healthy Greater Sage-Grouse habitat (e.g., conifer encroachment areas and annual grasslands).	[Remainder of this action is unchanged from the 2015 ARMPA.]…treat areas to maintain and expand healthy Greater Sage-Grouse habitat (e.g., conifer encroachment areas and invasive annual grasslands).
MA-LG-1	PHMA and GHMA will be available for livestock grazing (Figure 2-3, Livestock Grazing [Appendix A]). Active animal unit months (AUMs) for livestock grazing will be 329,521 on BLM lands…. [Remainder of this action is unchanged from the 2015 ARMPA.]	No similar action. [Meaning the presence of Greater Sage-Grouse habitat management areas does not affect the determination of whether or not an area is available for livestock grazing or the active AUMs.]

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
MA-LG-2	The BLM will prioritize (1) the review of grazing permits/leases, in particular to determine if modification is necessary prior to renewal, and (2) the processing of grazing permits/leases in SFA first followed by PHMA outside SFA. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting Land Health Standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization to respond to urgent natural resource concerns (ex., fire) and legal obligations.	No similar action.
MA-LG-3	In PHMA, consult, cooperate, and collaborate with other land owners and management agencies (e.g., private and SITLA) to develop plans which provide for landscape level approaches to habitat improvement. Manage unfenced private and SITLA lands within a grazing allotment that are under exchange of use agreements or percent public land use as a single unit that will have the same management as the public lands.	No similar action.
MA-LG-4	Evaluate Utah's Rangeland Health Standards and process grazing permits. Focus monitoring and management activities on allotments found not to be achieving Utah's Rangeland Health Standards where livestock grazing is identified as a causal factor and that have the best opportunities for conserving, enhancing or restoring habitat for Greater Sage-Grouse. Use ecological site descriptions and/or other appropriate information to determine the desired plant community within proper functioning ecological processes for conducting land health assessments to evaluate the achievement or non-achievement of rangeland health standards.	No similar action.
MA-LG-5	In PHMA and GHMA, conduct land health assessments that include indicators and measurements of structure, condition, composition, etc., of vegetation specific to achieving Greater Sage-Grouse habitat objectives (Objective SSS-3), including within wetlands and riparian areas. Prioritize land health assessments in SFA, followed by PHMA outside of the SFA. Conduct land health assessments at the watershed scale and use the Greater Sage-Grouse habitat objectives when assessing the applicable standard in Greater Sage-Grouse habitats.	No similar action.

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
MA-LG-6	In PHMA, when livestock management practices are determined to not be compatible with meeting or making progress towards achievable habitat objectives following appropriate consultation, cooperating and coordination, implement changes in grazing management through grazing authorization modifications, or allotment management plan implementation. Potential modifications include, but are not limited to, changes in: • Season or timing of use; • Numbers of livestock; • Distribution of livestock use; • Duration and/or level of use; • Kind of livestock (e.g., cattle, sheep, horses, or goats); and • Grazing schedules (including rest or deferment). *Not in priority order The NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within SFA and PHMA will include specific management thresholds based on Table 2-2, Land Health Standards (43 CFR, Part 4180.2), and ecological site potential, and one or more defined responses that will allow the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis. Adjustments to meet seasonal Greater Sage-Grouse habitat requirements could include those items identified in the list above.	In PHMA, when an area is not meeting or making progress towards achievable habitat objectives and Land Health Standards and the causal factor is livestock grazing (i.e., improper livestock grazing), implement changes in grazing management through grazing authorization modifications, or allotment management plan implementation. Potential modifications include, but are not limited to, changes in: • Season or timing of use; • Numbers of livestock; • Distribution of livestock use; • Duration and/or level of use; • Kind of livestock (e.g., cattle, sheep, horses, or goats); and • Grazing schedules (including rest or deferment). *Not in priority order When improper livestock grazing is the causal factor for not meeting or making progress towards achievable habitat objectives and Land Health Standards, the NEPA analysis for renewals and modifications of livestock grazing permits/leases that include lands within PHMA will analyze multiple potential modifications (e.g., alternatives from the list above) that address the reasons for not meeting, allowing the authorizing officer to make adjustments to livestock grazing that have already been subjected to NEPA analysis. Adjustments to meet seasonal Greater Sage-Grouse habitat requirements could include those items identified in the list above.
MA-LG-7	In PHMA, during drought periods, prioritize evaluating effects of the drought relative to Greater Sage-Grouse needs for food and cover. Initiate emergency management measures (e.g. delaying turnout, adjusting the amount and/or duration of livestock grazing, implement other terms of the permit) during times of drought to protect Greater Sage-Grouse habitat, in accordance with Instruction Memorandum 2013-094 (Resource Management During Drought), or other agency policies.	No similar action.

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	Implement post-drought management to allow for vegetation recovery that meets Greater Sage-Grouse needs.	
MA-LG-8	In PHMA, manage riparian areas and wet meadows for proper functioning condition.	No similar action.
MA-LG-9	In PHMA, assess livestock grazing in riparian and meadow complexes and ensure recovery or maintenance of appropriate vegetation and water quality. Where recovery or maintenance is not occurring and the causal factor is livestock grazing, reduce pressure on riparian or wet meadow vegetation used by Greater Sage-Grouse in the summer by adjusting grazing management practices (e.g., use fencing/herding techniques, or changes in seasonal use or livestock distribution). Allotments within SFA, followed by those within PHMA, and focusing on those containing riparian areas, including wet meadows, will be prioritized for field checks to help ensure compliance with the terms and conditions of the grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.	No similar action.
MA-LG-10	In PHMA, limit authorization of new water developments to projects that have a neutral effect or are beneficial to Greater Sage-Grouse habitat (such as by shifting livestock use away from critical areas). New developments that divert surface water must be designed to maintain riparian or wet meadow vegetation and hydrology to meet Greater Sage-Grouse needs.	In PHMA, limit authorization of new water developments to projects that have a neutral effect or are beneficial to Greater Sage-Grouse habitat (such as by shifting livestock use away from critical areas).
MA-LG-12	In PHMA, ensure that vegetation treatments conserve, enhance or restore Greater Sage-Grouse habitat (this includes treatments that benefit livestock).	No similar action.
MA-LG-13	In PHMA, evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses to determine if they should be restored to sagebrush or habitat of higher quality for Greater Sage-Grouse. If existing seedings provide value in conserving or enhancing Greater Sage-Grouse habitats, then no restoration will be necessary. Assess the compatibility of these seedings for Greater Sage-Grouse habitat during the land health assessments.	No similar action.

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
MA-LG-14	In PHMA, design new structural range improvements to have a neutral effect or conserve, enhance, or restore Greater Sage-Grouse habitat through an improved grazing management system relative to Greater Sage-Grouse objectives. Structural range improvements, in this context, include but are not limited to: cattle guards, fences, exclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments. Potential for invasive species establishment or increase following construction must be considered in the project planning process and monitored and treated post-construction.	No similar action.
MA-LG-15	In PHMA, evaluate existing structural range improvements to make sure they have a neutral effect or conserve, enhance or restore Greater Sage-Grouse habitat.	No similar action.
MA-LG-17	In PHMA, monitor for and treat noxious weeds and treat invasive species where needed, associated with existing range improvements.	No similar action.
MA-LG-18	At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR, Part 4110.2-3.	No similar action.
MA-VEG-3	In PHMA manage wet meadows to maintain a component of perennial forbs with diverse species richness relative to site potential (e.g., reference state) to facilitate brood rearing.	In PHMA manage riparian areas for proper functioning condition. In PHMA manage wet meadows to maintain a component of perennial forbs with diverse species richness relative to site potential (e.g., reference state) to facilitate brood rearing.
Issue: Clarifying Management of Water Developments for Livestock		
MA-LG-10	In PHMA, limit authorization of new water developments to projects that have a neutral effect or are beneficial to Greater Sage-Grouse habitat (such as by shifting livestock use away from critical areas). New developments that divert surface water must be designed to maintain riparian or wet meadow vegetation and hydrology to meet Greater Sage-Grouse needs.	In PHMA, limit authorization of new water developments to projects that have a neutral effect or are beneficial to Greater Sage-Grouse habitat (such as by shifting livestock use away from critical areas).

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
Issue: Clarifying the Role of the BLM, State of Utah and Counties with Respect to Travel Management Planning		
MA-TTM-3	During subsequent travel management planning, consultation "with interested user groups, federal, state, county, and local agencies, local landowners, and other parties in a manner that provides an opportunity for the public to express itself and have its views given consideration." Consequently, a public outreach plan to fully engage all interested stakeholders will be incorporated into future travel management plans.	During subsequent travel management planning, consultation "with interested user groups, federal, state, county, and local agencies, local landowners, and other parties in a manner that provides an opportunity for the public to express itself and have its views given consideration." Consequently, an outreach plan to fully engage all interested stakeholders, including state, local and tribal governments, will be incorporated into future travel management plans.
Issue: Clarifying the Role of the BLM, State of Utah and Counties with Respect to Predator Control		
MA-SSS-3D	[Remainder of this action is unchanged from the 2015 ARMPA.]… Collaborate with applicable government entities to implement programs to control predator populations of Greater Sage-Grouse (e.g., ravens, red fox, badgers, and raccoons).	[Remainder of this action is unchanged from the 2015 ARMPA.]… Efforts by other agencies to minimize impacts from predators on the Greater Sage-Grouse should be supported and encouraged where needs have been documented. Collaborate with applicable government entities to implement programs to control predator populations of Greater Sage-Grouse (e.g., ravens, red fox, badgers, and raccoons).
Issue: Clarifying Management of Surface Coal Mining		
MA-MR-18	Leases Associated with Surface Mining At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR, Part 3461.5. PHMA is essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1).	Leases Associated with Surface Mining At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR, Part 3461.5. Coordination with the appropriate State of Utah agency and the determination of essential habitat for maintaining Greater Sage-Grouse for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1) will consider site-specific information associated with potential lease nomination areas as part of the unsuitability process identified above.
Issue: Decisions that Require Analysis of Specific Alternatives during Implementation		
MA-FIRE-3	Using an interdisciplinary approach, a full range of fuel reduction techniques will be available. Fuel reduction techniques such as conifer reduction, grazing, prescribed fire, chemical, biological, and mechanical treatments may be acceptable, given site-specific variables.	Using an interdisciplinary approach, a full range of fuel reduction techniques will be available. Fuel reduction techniques such as conifer reduction, targeted livestock grazing, prescribed fire, chemical, biological, and mechanical treatments may be acceptable, given site-specific variables.
MA-FIRE-5	MA-FIRE-5: In PHMA, during fuels management project design, consider the use of targeted livestock grazing to strategically	No similar action.

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	reduce fine fuels and, if used, implement grazing management that will accomplish this objective. If implementing targeted grazing, implement measures to minimize impacts on native perennial grasses.	
MA-TTM-3	• During subsequent travel management planning, all routes will undergo a route evaluation to determine its purpose and need and the potential resource and/or user conflicts from motorized travel. Where resource and/or user conflicts outweigh the purpose and need for the route, the route will be considered for closure or considered for relocation outside of sensitive Greater Sage-Grouse habitat. • During subsequent travel planning, threats to Greater Sage-Grouse and their habitat will be considered when evaluating route designations and/or closures. • During subsequent travel management planning, routes that do not have a purpose or need will be considered for closure. • During subsequent travel management, planning, routes that are duplicative, parallel, or redundant will be considered for closure. • During subsequent travel management planning, seasonal restrictions on OHV use will be considered in important seasonal habitats where OHV use is a threat. During subsequent travel management planning, consider limiting over snow vehicles designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow to designated routes or consider seasonal closures in Greater Sage-Grouse wintering areas from November 1 through March 31. • During subsequent travel management planning, routes not required for public access or recreation with a current administrative/agency purpose or need will be evaluated for administrative access only. • During subsequent travel management planning, consider prioritizing restoration of routes not designated in a Travel Management Plan.	No similar action.

2015 ARMPA Decision Number	No-Action Alternative	Management Alignment Alternative
	• During subsequent travel management plan implementation, consider using seed mixes or transplant techniques that will maintain or enhance Greater Sage-Grouse habitat when rehabilitating linear disturbances. • During subsequent travel management plan implementation, consider scheduling road maintenance to avoid disturbance during sensitive periods and times to the extent practicable. Consider using time of day limits (e.g., no use between 6:00 pm and 9:00 am) to reduce impacts on Greater Sage-Grouse during breeding periods.	
MA-TTM-6	In PHMA, when considering upgrade of existing routes that will change route category (BLM route categories: road, primitive road, or trail) or capacity, consider the larger transportation network while providing for protection of Greater Sage-Grouse habitat.	No similar action. [Doesn't provide any different direction than MA-TTM-5.]
MA-TTM-8	In PHMA, when reseeding roads, primitive roads and trails, use appropriate seed mixes and consider the use of transplanted sagebrush.	No similar action. [Selection of seed mix is already covered by MA-VEG-5 and MA-VEG-8.]

2.6 PREFERRED ALTERNATIVE

BLM regulations require the agency to identify a preferred alternative in the Draft RMPA/EIS (43 CFR 1610.4-7). The preferred alternative represents those goals, objectives, and actions determined to be most effective at resolving planning issues and balancing resource use at this stage of the process. While collaboration is critical in developing and evaluating alternatives, the final designation of a preferred alternative remains the responsibility of the lead agency, which is the BLM for this project. The agency has identified the Management Alignment Alternative as the preferred alternative.

It is important to note that the identification of a preferred alternative does not constitute a final decision, and there is no requirement that the preferred alternative identified in the Draft RMPA/EIS be selected as the agencies' decision in the ROD. Various parts of separate alternatives that are analyzed in this Draft RMPA/EIS can be "mixed and matched" to develop a proposed plan. With respect to compensatory mitigation in particular, at the request of the State, the Management Alignment Alternative in this Draft RMPA/EIS proposes a change to compensatory mitigation by modifying the net conservation gain standard that the BLM incorporated into its plans in 2015. The DOI and the BLM have also modified their mitigation policies since the 2015 plans were finalized. The public did not have the opportunity to comment specifically on a net conservation gain approach to compensatory mitigation during the 2015 land use planning process. In addition, the DOI and the BLM are evaluating whether the implementation of a compensatory mitigation standard on public lands is appropriate and consistent with applicable legal authorities. We request public comment about how the BLM should consider and implement mitigation with respect to the Greater Sage-Grouse, including alternative approaches to requiring compensatory mitigation in BLM land use plans.

2.7 PLAN EVALUATION, MONITORING, AND ADAPTIVE MANAGEMENT

Plan evaluation is the process by which the plan and monitoring data are reviewed to determine if management goals and objectives are being met and if management direction is sound. Land use plan evaluations determine if decisions are being implemented, if mitigation measures are satisfactory, if there are significant changes in the related plans of other entities, if there are new data of significance to the plan, and if decisions should be amended or revised.

Monitoring data gathered over time is examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why not. Conclusions are then used to recommend whether to continue current management or to identify what changes need to be made in management to meet objectives. The BLM would use land use plan evaluations to determine if the decisions in the RMPA, supported by the accompanying NEPA analysis, are still valid in light of new information and monitoring data. Its evaluations would follow the protocols established by the BLM Land Use Planning Handbook (H-1601-1) or other appropriate guidance in effect at the time the evaluation is initiated.

The ARMPA also includes an adaptive management strategy that includes soft and hard triggers and responses. These triggers are not specific to any particular project but identify habitat and population thresholds. Triggers are based on the two key metrics that are being monitored during the life of the RMPA: habitat loss and population declines.

Soft triggers represent an intermediate threshold, indicating that management changes are needed at the implementation level to address habitat or population losses. If a soft trigger is tripped during the life of the plans, the BLM's response would be to apply more conservative or restrictive conservation

measures to mitigate for the specific cause in the decline of populations or habitats, with consideration of local knowledge and conditions. The BLM would make these adjustments to prevent tripping a hard trigger, which would signal more severe habitat loss or population declines.

Hard triggers represent a threshold indicating that more direct and refined actions are quickly needed to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the RMPA. New scientific information could become available, demonstrating that the corrective strategy implemented in response to the hard trigger could be insufficient to stop the severe deviation from Greater Sage-Grouse conservation objectives set forth in the RMPA. If this occurs, the BLM and its partners will review the new scientific information to determine how it may change the causal factor analysis and corrective strategy. If the BLM, in coordination with its partners, concludes that the responses would be insufficient, the BLM will implement necessary management to protect Greater Sage-Grouse and its habitat and to ensure that conservation options are not foreclosed in the area where the trigger has been met (e.g., a formal directive akin to BLM Instruction Memorandum 2012-043). The BLM would also undertake any appropriate plan amendments or revisions, if necessary. More information regarding the RMPA's adaptive management strategy can be found in its **Appendix I**.

Chapter 3. Affected Environment

3.1 INTRODUCTION

The purpose of this chapter is to describe the existing biological, physical, and socioeconomic characteristics of the planning area, including human uses that could be affected by implementing the alternatives described in **Chapter 2**. The affected environment provides the context for assessing the potential impacts described in **Chapter 4**. The resource topics in this chapter reflect those that are identified in **Table 1-1**, Issues and Related Resource Topics, as corresponding to an issue carried forward for detailed analysis in this RMPA/EIS.

The geographic extent of this environmental analysis is substantially similar to that in the 2015 Final EIS, with the exception of the portions of the 2015 planning area that were in Wyoming. Approximately 54,800 acres administered by the Ashley National Forest and 22,000 acres administered by the Uinta/Wasatch/Cache National Forest that extended into Wyoming are not part of the planning area for this process. Additionally, approximately 71,900 acres administered by the Sawtooth National Forest in Box Elder County are included in the planning area for this process that were part of the Idaho planning area in 2015.

The BLM acknowledges that there have been changes to the landscape since 2015; however, since the context of this analysis covers 2,520,000 acres of BLM-administered lands and 1,497,400 acres of federal mineral estate, the data collected consistently across the range indicate that the extent of these changes is relatively minimal. For example, BLM monitoring data collected using nationally available datasets and analyzed annually at the biologically significant unit (BSU) scale, as outlined in the Greater Sage-Grouse Monitoring Framework (Appendix D of the 2015 ROD/ARMPA), indicate that there has been a less than 1 percent range-wide overall increase in estimated disturbance from 2015 through 2017 on PHMA and IHMA (Idaho Important Habitat Management Area). Moreover, there has been a range-wide overall decrease of less than 1 percent range-wide from 2012 through 2015 in sagebrush availability in PHMA within BSUs.

The estimates of habitat management areas burned in 2016 and 2017 indicate an increase in potential habitat availability loss in portions of the range (largely outside of Utah compared with previous fire seasons; however, the acres lost do not necessarily affect monitored PHMAs in BSUs. For this reason, burned acres are most influential at scales below which the environmental analysis would be conducted.

Based on available information, including the USGS reports described below, the BLM has concluded that the existing condition is not substantially different from that of 2015; therefore, the data and information presented in the 2015 Final EIS are incorporated into this RMPA/EIS.

Actions that have been authorized since the 2015 plan were consistent with the 2015 Final EIS. The BLM would continue to implement the decisions in the 2015 plan unless those decisions are amended.

Acreage figures and other numbers were approximated using geographic information systems (GIS) technology; they do not reflect exact measurements or precise calculations.

USGS Reports

As part of the consideration of whether to amend some, all, or none of the 2015 Greater Sage-Grouse land use plans, the BLM requested the USGS to develop an annotated bibliography of Greater Sage-Grouse science published since January 2015 (Carter et al. 2018)1 and a report that synthesizes and outlines the potential management implications of this new science (Hanser et al. 2018).

Following the 2015 plans, the scientific community has continued to improve the knowledge available to inform management actions and an overall understanding of Greater Sage-Grouse populations, habitat requirements, and their response to human activity. The review discussed the science related to six major topics identified by USGS and BLM, as follows:

- Multiscale habitat suitability and mapping tools
- Discrete human activities
- Diffuse activities
- Fire and invasive species
- Restoration effectiveness
- Population estimation and genetics

Multiscale Habitat Suitability and Mapping Tools

The science developed since 2015 corroborates previous knowledge about Greater Sage-Grouse habitat selection. Advances in modeling and mapping techniques at the landscape scale can help inform allocations and targeting of land management resources to benefit Greater Sage-Grouse conservation. Similar improvements at the site scale facilitate a better understanding of the relationship of grass height to nest success, which indicates the potential need for a reevaluation of the existing habitat objectives (Hanser et al. 2018, p. 2).

The BLM has completed a plan maintenance action whereby the agency has clarified its ability to modify the habitat objective indicator values based upon local, site-specific information.

Discrete Human Activities

The science developed since 2015 corroborates prior knowledge about the impact of discrete human activities on Greater Sage-Grouse. New science suggests that strategies to limit surface disturbance may be successful at limiting range-wide population declines; however, it is not expected to reverse the declines, particularly in areas of active oil and gas operations (Hanser et al. 2018, p. 2). This information may have relevance when considering the impact of changes to management actions designed to limit discrete disturbances.

Diffuse Activities

The science developed since 2015 does not appreciably change prior knowledge about diffuse activities, such as livestock grazing, predation, hunting, wild horses and burros, fences, recreation, and noise; however, some study authors questioned current assumptions, provided refinements, or corroborated existing understanding.

[1] Internet website https://doi.org/10.3133/ofr20181008

Studies have shown that the impacts of livestock grazing vary with grazing intensity and season. Predation from ravens can limit Greater Sage-Grouse populations in areas with overabundant predator numbers or degraded habitats. Applying predator control has potential short-term benefits in small, declining populations; however, reducing human subsidies (i.e., food sources resulting from human activities) may be necessary to generate long-term changes in raven numbers. This is because raven control has produced only short-term declines in local raven populations.

Finally, no new insights into the impacts of wild horses and burros, fence collision, recreation, or noise on Greater Sage-Grouse have been developed (Hanser et al. 2018, p. 2).

Fire and Invasive Species

Science since 2015 indicates that wildfire will continue to threaten Greater Sage-Grouse through loss of available habitat, reductions in multiple vital rates, and declining population trends, especially in the western part of its range. The concepts of resilience after wildfire and resistance to invasion by nonnative annual grasses have been mapped across the sagebrush ecosystem. These concepts inform restoration and management strategies and help prioritize application of Greater Sage-Grouse management resources (Hanser et al. 2018, p. 2).

Restoration Effectiveness

Since 2015, tools have been developed to help managers strategically place and design restoration treatments where they will have the greatest benefit for Greater Sage-Grouse. Studies conducted in Utah demonstrated that conifer removal benefited Greater Sage-Grouse through increased female survival and nest and brood success. Treatment method and site potential can affect posttreatment vegetation characteristics. Sagebrush manipulation treatments seemed to benefit Greater Sage-Grouse populations and brood-rearing habitat availability, but benefits may be limited to areas with high sagebrush cover at higher elevations and in mountain big sagebrush (*A. tridentata vaseyana*) communities. Studies indicate that Greater Sage-Grouse populations did not benefit from, or were negatively affected by, prescribed fire and mechanical sagebrush removal. (Hanser et al. 2018, p. 3)

Population Estimation and Genetics

The accuracy of estimating Greater Sage-Grouse populations has increased. This is because of improved sampling procedures used to complete count surveys at leks and the development of correction factors for potential bias in lek count data. In addition, techniques have also improved to map Greater Sage-Grouse genetic structure at multiple spatial scales. These genetic data are used in statistical models to increase understanding of how landscape features and configuration affect gene flow. This understanding emphasizes the importance of maintaining connectivity between populations to ensure genetic diversity and distribution (Hanser et al. 2018, p. 3).

3.2 RESOURCES AFFECTED

In accordance with **Chapter 1**, **Section 1.5**, Issues and Related Resource Topics Identified Through Scoping, the following resources may experience potential impacts based on the alternatives considered in **Chapter 2**. **Table 3-1**, Location of Baseline Information Incorporated by Reference, below, provides the location of baseline information for these resources and uses in the 2015 Final EIS, and where applicable, additional information contained in the Sagebrush Focal Area Withdrawal Draft EIS (BLM 2016).

Table 3-1
Affected Environment Information Incorporated by Reference

Resource Topic	Location of Baseline Information
Greater Sage-Grouse	Chapter 3, Section 3.3 (Special Status Species – Greater Sage-Grouse), page 3-4 in the 2015 Final EIS (BLM 2015) Chapter 3, Section 3.7.1 (Special Status Species), page 3-156 in the 2016 Draft EIS (BLM 2016) Additional information regarding Greater Sage-Grouse is included in Section 3.3 of this chapter.
Air Quality	Chapter 3, Section 3.4, page 3-44 in the 2015 Final EIS (BLM 2015) Additional information regarding air quality is included in Section 3.4 of this chapter.
Soil Resources	Chapter 3, Section 3.6, page 3-57 (BLM 2015)
Water Resources	Chapter 3, Section 3.7, page 3-60 (BLM 2015)
Vegetation (including Noxious Weeds; Riparian and Wetlands)	Chapter 3, Section 3.8, page 3-64 (BLM 2015) Chapter 3, Sections 3.6.2 (Vegetation Communities), page 3-133 and Section 3.6.3 (Invasive and Noxious Species), page 3-138 in the 2016 Draft EIS (BLM 2016) Additional information regarding vegetation is included in Section 3.5 of this chapter.
Other Special Status Species	Chapter 3, Section 3.9, page 3-99 (BLM 2015) Chapter 3, Section 3.6.1 (Special Status Species), page 3-128 in the 2016 Draft EIS (BLM 2016) Additional information regarding other special status species is included in Section 3.6 of this chapter.
Fish and Wildlife	Chapter 3, Section 3.10, page 3-127 (BLM 2015)
Wild Horses and Burros	Chapter 3, Section 3.11, page 3-142 (BLM 2015) Additional information regarding wild horses and burros is included in Section 3.7 of this chapter.
Cultural Resources	Chapter 3, Section 3.12, page 3-147 (BLM 2015)
Visual Resources	Chapter 3, Section 3.13, page 3-150 (BLM 2015)
Wildland Fire Management	Chapter 3, Section 3.14, page 3-154 (BLM 2015) Additional information regarding wildland fire management is included in Section 3.8 of this chapter.
Wilderness Characteristics	Chapter 3, Section 3.15, page 3-163 (BLM 2015) is updated with information regarding wilderness characteristics in Section 3.9 of this chapter.
Livestock Grazing/Range Management	Chapter 3, Section 3.16, page 3-165 (BLM 2015) Additional information regarding livestock grazing/range management is included in Section 3.10 of this chapter.
Recreation	Chapter 3, Section 3.17, page 3-171 (BLM 2015) Additional information regarding recreation is included in Section 3.11 of this chapter.

Table 3-1
Affected Environment Information Incorporated by Reference

Resource Topic	Location of Baseline Information
Comprehensive Travel and Transportation Management	Chapter 3, Section 3.18, page 3-177 (BLM 2015) Additional information regarding comprehensive travel and transportation management is included in Section 3.12 of this chapter.
Lands and Realty	Chapter 3, Section 3.19, page 3-180 (BLM 2015) Additional information regarding lands and realty is included in Section 3.13 of this chapter.
Renewable Energy	Chapter 3, Section 3.20, page 3-190 (BLM 2015) Additional information regarding renewable energy is included in Section 3.14 of this chapter.
Leasable Minerals (Oil and Gas, Nonenergy Leasable Minerals, Coal, and Oil Shale and Tar Sands)	Chapter 3, Section 3.21.1 (oil and gas), page 3-200 (BLM 2015) Chapter 3, Section 3.21.2 (nonenergy Leasable Minerals), page 3-208 (BLM 2015) Chapter 3, Section 3.21.3 (coal), page 3-212 (BLM 2015) Chapter 3, Section 3.21.6 (oil shale and tar sands), page 3-217 (BLM-2015) Additional information regarding leaseable minerals is included in Section 3.15 of this chapter.
Locatable Minerals	Chapter 3, Section 3.21.4, page 3-215 (BLM 2015) Chapter 3, Section 3.4.3 (Mineral Resources), page 3-8 and Section 3.4.4 (Market Demand for Locatable Minerals), page 3-8 in the 2016 Draft EIS (BLM 2016)
Mineral Materials	Chapter 3, Section 3.21.5, page 3-216 (BLM 2015)
Social and Economic Conditions	Chapter 3, Section 3.23 (Social and Economic Conditions (Including Environmental Justice)), page 3-231 (BLM 2015) Chapter 3, Section 3.5 (Social and Economic Conditions), page 3-9, and specifically Section 3.5.17, Section 3.5.18, and Section 3.5.19 in the 2016 Draft EIS (BLM 2016) Additional information regarding social and economic conditions is included in Section 3.16 of this chapter.
Tribal Interests	Chapter 3, Section 3.24, , page 3-267 (BLM 2015)

3.3 GREATER SAGE-GROUSE

Existing conditions for Greater Sage-Grouse in the planning area are described in the 2015 Final EIS in Section 3.3 (Special Status Species – Greater Sage-Grouse, pages 3-4 through 3-44), as well as in the 2016 Sagebrush Focal Areas Withdrawal Draft EIS in Section 3.7.1 (Special Status Species - pages 3-156 through 3-165). This section identifies additions or changes in research and data, specific to the planning area, which has become available in the last 3 years.

Based on the Fish and Wildlife Service's 2015 listing determination, Greater Sage-Grouse is no longer a candidate species for listing; it remains, however, a BLM Utah sensitive species and under Utah law it is

classified as an upland game species managed by the UDWR. The State of Utah's 2015 Wildlife Action Plan identifies the Greater Sage-Grouse as an S3 (on a 1-5 scale).

3.3.1 Greater Sage-Grouse Population Trends

As of 2017, there are 366 occupied Greater Sage-Grouse leks in Utah. Population trends were calculated for the 12 population areas using the past 20 years of data in coordination with the Utah Division of Wildlife Resources and are presented in **Table 3-2**, Greater Sage-Grouse Population Trends for Areas in Utah. These trends were calculated for PHMA and General Habitat Management Areas (GHMA) (as identified in the 2015 Approved RMP Amendment) to allow comparisons between the two types of management area designations statewide. Natural fluctuations over time are known to occur in Greater Sage-Grouse populations. In Utah, the populations tend to show a cyclic pattern over a roughly 10-year timeframe. As such, short-term population trends are less important than long-term population trends.

Table 3-2
Greater Sage-Grouse Population Trends for Areas in Utah

Population Area	Occupied Leks - 2017		Average Males per Lek - 2017		Male Count on Leks - 2017		20-Year Linear Regression Slope on Male Counts (birds added/lost per year)	
	PHMA	GHMA	PHMA	GHMA	PHMA	GHMA	PHMA	GHMA
Bald Hills	14	0	10.2	N/A	133	0	7.4	N/A
Box Elder	71	0	17.8	N/A	710	41[E]	0.7	N/A
Carbon	25	0	16.7	N/A	333	0	13.2	N/A
Emery	5	0	14.6	N/A	73	0	3.5	N/A
Hamlin Valley	7	0	15.0	N/A	90	0	-0.7	N/A
Ibapah	4	0	14.5	N/A	29	0	0.4	N/A
Panguitch	21	0	25.1	N/A	476	0	10.8	N/A
Parker Mountain	54	0	20.8	N/A	897	0	18.4	N/A
Rich	60	7	20.9	15.5	626	62	1.3	4.8[C]
Sheeprocks	6	3	9.3	4.5	28	9	-3.7	1.1[B]
Strawberry	9	0	21.5	N/A	86	0	5.5	N/A
Uintah	68	12	12.9	21.8	722	87	30.5	-0.3
Statewide[D]	344	22	17.4	18.1	4,203	199	87.3	7.8

Notes: Information for this table provided by the Division of Wildlife Resources.
Occupied Lek: A lek that has been active during at least one strutting season within the last 10 years
Number of Occupied Leks: The number of leks classified as occupied as of the 2017 lek count by UDWR.
Average Males Per Lek: sum of high counts from leks with counts >= 1 in 2017 divided by the number of leks with >=1 male counted. Includes counts from new (undetermined) leks.
Male Count on Lek: Sum of high male Counts for the 2017 season. Includes counts from new (undetermined) leks.
A: Single counts in 1998, 1999, 2000, 2002, 2004 only. No meaningful regression possible
B: Occupied leks in Sheeprocks GHMA found in 2002 and 2008. Biased trend estimate.
C: 8 leks in Rich GHMA found in 2002. Biased trend estimate.
D: Statewide includes all counts within PHMA or GHMA. Including undetermined leks for regression, average males per lek and total count. Undetermined leks are not counted in number of occupied leks (see definition of occupied above).
E: Total count includes one undetermined lek found in 2017.

3.3.2 Adaptive Management

The 2015 Approved RMP Amendment establishes soft and hard triggers for Greater Sage-Grouse habitat and populations (see MA-SSS-7). After evaluating the triggers for 2016 and 2017, eleven of the

twelve Greater Sage-Grouse population areas have not met any of the triggers. The Sheeprocks area met the hard trigger and a soft trigger in 2016. The soft trigger criteria met was a population Lambda of less than 1 in 4 consecutive years (2013 – 2016). The hard trigger criteria met was a population Lambda of less than 1 in 8 of a 10-year period (2008 – 2017). Both triggers reflect a long-term population decline in the Sheeprocks PHMA. A state-led collaborative effort by the West Desert GRSG Local Working Group identified the potential causes of the population declines as predation and reductions in habitat availability due to fire, conifer encroachment, and invasive annual weeds. In addition, the BLM, in coordination with an interagency team of biologists and the local working group, is evaluating data to document if there are other causes that may be contributing to the decline. Preliminary actions by state and federal agencies have sought to address these threats, including the BLM applying the measures identified in the 2015 Approved RMP Amendment.

The major difference in management when meeting the adaptive management trigger was the change to the Sheeprock's PHMA to align with the boundaries mapped in Alternative B in the 2015 Final EIS. This resulted in 111,900 acres that were mapped as GHMA in the Proposed Plan being changed to be managed as PHMA, with all the corresponding management. Of the changed acres, only 53,900 (48 percent) are BLM-administered lands. The remainder are private (39,300 acres) or state (18,700 acres) lands.

3.3.3 GRSG Interim Seasonal Habitat Models

In 2017, an interagency effort to prepare maps of seasonal Greater Sage-Grouse habitat in Utah produced three maps of modeled seasonal habitats. These habitat maps were developed using a database of hundreds of lek locations paired with over 20,000 very high frequency (VHF) radio telemetry locations from Greater Sage-Grouse statewide. The resulting models were created using a method where 85 percent of the Greater Sage-Grouse VHF seasonal locations were captured within the habitat management areas, then the habitat conditions associated with those locations were identified throughout the state. It is important to note that these maps do not reflect occupied seasonal habitats (as identified by UDWR), but areas with vegetation characteristics similar to areas where the VHF locations were located. Therefore, these models may not reflect every acre of seasonal habitat used by a given population, but they do identify areas of potential seasonal habitats. The results of this modeling effort are presented in **Figure 3-2**, Utah Greater Sage-Grouse Breeding Habitat, **Figure 3-3**, Utah Greater Sage-Grouse Summer Habitat, and **Figure 3-4**, Utah Greater Sage-Grouse Winter Habitat. Acreages for these seasonal habitats are presented for PHMA and GHMA in **Table 3-3**. Breeding habitat is defined as areas used for lekking, nesting, and early brood-rearing from March 1 – June 14. Summer habitat is defined as areas used for brood-rearing from June 15 – August 31. Winter habitat is defined as areas used from November 1 – February 29. For additional information on modeling methods, outcomes, and future efforts refer to the 2017 Annual Report for Utah's GRSG Local Working Groups (Messmer et. al. 2018).

The models and their associated maps are a preliminary step in a process to improve seasonal mapping throughout Utah. These preliminary models and maps will be updated as additional location data is collected. Currently, an interagency state-wide data collection effort is underway to increase knowledge of how Greater Sage-Grouse populations use the fragmented landscapes throughout Utah; data from this effort will be used to refine the seasonal habitat models and maps. The 2017 seasonal models will be updated using data from global positioning system (GPS) transmitters that are fitted onto individual birds. To date, nearly 350 GPS transmitters have been deployed on Greater Sage-Grouse individuals

Table 3-3
Modeled Seasonal Habitat Acres within PHMA and GHMA.

Population Area	Modeled Breeding		Modeled Summer		Modeled Winter	
	PHMA	GHMA	PHMA	GHMA	PHMA	GHMA
Bald Hills	85,600	100	201,700	200	187,300	3,600
Box Elder	769,300	0	581,000	0	740,000	0
Carbon	98,000	0	171,700	24,500	188,300	53,500
Emery	34,700	0	30,800	0	10,700	0
Hamlin Valley	94,400	0	67,600	0	102,000	0
Ibapah	28,800	0	38,100	0	48,600	3,700
Panguitch	125,500	0	127,200	0	172,700	0
Parker Mountain	421,900	0	279,500	2,300	425,100	2,400
Rich	575,800	47,000	656,600	40,000	662,700	45,600
Sheeprocks	106,100	0	232,500	0	387,000	3,000
Strawberry	81,500	5,500	99,800	10,800	12,400	16,500
Uintah	344,900	177,600	316,800	315,800	407,100	399,500

Note: There is substantial overlap in seasonal habitat acres/areas, therefore these are not a sum of total modeled habitat.

statewide. Compared to the labor-intensive process of collecting location data from VHF transmitters, the GPS transmitters collect 5 – 10 locations per day throughout the year eliminating the need for staff to physically locate the signal. This will result in over 1 million data points by 2019 that depict how Greater Sage-Grouse move across the landscape on a seasonal basis. This collaborative data collection effort will allow for increased information on seasonal habitat types used by Greater Sage-Grouse and will be used to refine seasonal habitat models and maps for Utah (Messmer et al. 2018).

3.3.4 Greater Sage-Grouse Seasonal Habitat Guidelines

A new study by Dahlgren et al. (2018, In review) develops habitat guidelines for Greater Sage-Grouse in Utah based on local Greater Sage-Grouse locations, differentiated by environmental variations. Their study pairs micro-site vegetation data and Greater Sage-Grouse presence to spatial data such as climate, vegetation, and elevation to formulate empirically-based habitat guidelines for Utah. The results of this study identified three distinct habitat clusters or zones of Greater Sage-Grouse habitat conditions named Low, Wasatch, and Parker (see **Figure 3-1**, Utah Greater Sage-Grouse Local Habitat Clusters). For each zone they provide habitat guidelines for percent cover and heights of: sagebrush, shrub, grass, and forbs. According to Dahlgren et al., Greater Sage-Grouse "in Utah selected sites with sparser and lower vegetation conditions than Connelly et al.'s (2000) guidelines."

3.3.5 Anthropogenic Disturbance

Anthropogenic disturbance was discussed in relation to Greater Sage-Grouse populations in the 2015 Final EIS (Section 3.3.5 – Conditions in Population Areas), as well as in Appendix L (Baseline Disturbance Inventory). That baseline inventory used a combination of data sources collected at multiple scales, from national-scale data sets to digitized disturbance of mining sites using aerial imagery. Since 2015, the disturbance inventory has been refined in several areas, specifically focusing on PHMA and areas where activities that needed to align with the disturbance cap were proposed. Anthropogenic disturbance has incrementally increased in some areas as a result of updating data sources and implementing projects. However, the more common effect over the last 3 years was that as disturbance data was refined with on-the-ground knowledge, the amount of disturbance was less than the amount identified from the

coarser-scale data due to the removal of disturbances that were being double counted. Another common correction during field verification was that the standard buffer distance associated with linear features (e.g., roads) was usually larger in the estimated calculation than the actual disturbance footprint. Based on the current disturbance inventory maintained by the BLM Utah, no PHMA in any of the population areas has disturbance that is greater than 1.5 percent (see **Table 3-4**).

Table 3-4
Inventoried Disturbance in Greater Sage-Grouse Habitat Management Areas.

Population Area	PHMA			GHMA		
	Total Acres	Disturbance Acres	Percent Disturbance	Total Acres	Disturbance Acres	Percent Disturbance
Bald Hills	326,400	3,765	1.2%	21,200	427	2.0%
Box Elder	1,227,800	4,059	0.3%	0	0	-
Carbon	259,400	3,548	1.4%	198,600	3,238	1.6%
Emery	80,500	358	0.4%	11,400	126	1.1%
Hamlin Valley	143,700	1,071	0.7%	0	0	-
Ibapah	88,800	455	0.5%	10,800	81	0.8%
Panguitch	343,900	3,953	1.1%	37,500	144	0.4%
Parker Mountain	741,300	5,757	0.8%	0	62	-
Rich	1,015,400	6,039	0.6%	197,900	1,485	0.8%
Sheeprocks	646,600	4,322	0.7%	184,500	1,940	1.1%
Strawberry	161,500	646	0.4%	20,600	52	0.3%
Uintah	565,600	8,410	1.5%	989,362	12,529	1.3%
Statewide	5,600,900	42,383	0.8%	1,671,862	20,084	1.2%

3.4 AIR QUALITY

Existing conditions for air quality in the planning area are described in the 2015 Final EIS in Section 3.4 (Air Quality, page 3-44). This section identifies additions or changes which are applicable to the analysis and decision-making process.

On October 26, 2015, the Environmental Protection Agency (EPA) issued a Final Rule adjusting the National Ambient Air Quality Standard (NAAQS) for ozone (O_3) from 75 parts per million to 70 parts per million. This results in a change in the cited NAAQS noted on page 3-45 and 3-48 (Table 3.5) in the 2015 Final EIS. This does not change whether there were exceedances, as presented in Table 3.5 of the 2015 Final EIS, nor does it change the conclusions of the impact analysis for air quality. Table 3.5 of the 2015 Final EIS has been updated with data from 2014-2017, and is included below as **Table 3-5**.

On December 20, 2017, the EPA sent Utah Governor Gary Herbert a letter responding to the state's recommendations in relation to designating Nonattainment areas for ozone in the state. In their letter, the EPA noted the following:

> "After considering Utah's September 29, 2016 ozone designation recommendations, which were based on 2013-2015 air quality data, as well as other relevant technical information (including 2014-2016 air quality data), the EPA intends to designate Salt Lake and Davis Counties as Nonattainment for ozone. Additionally, the EPA intends to designate portions of Weber, Tooele, Utah, Uintah, and Duchesne, Counties (including both state and tribal land) as Nonattainment for ozone."

Table 3-5
Air Quality Monitoring Values in Utah

Pollutant	Averaging Time	2014	2015	2016	2017	4-Year Average	NAAQS	Percent of NAAQS[3]
	8600 West 24000 North Portage Monitor Site, Box Elder County							
Ozone	8-hour[1]	0.061 ppm	0.067 ppm	0.051 ppm	0.063 ppm	0.061 ppm	0.070 ppm	86%
	Monitor Site 2 Miles South of Ouray and South of the White and Green River Confluence, Uintah County							
Ozone	8-hour[1]	0.079 ppm	0.068 ppm	0.096 ppm	0.065 ppm	0.077 ppm	0.070 ppm	109%
Nitrogen Dioxide	1-hour	29 ppb	23 ppb	20 ppb	16 ppb	22 ppb	100 ppb	20%
	Monitor Site 2 Miles West of Redwash Atop Deadman's Bench, Uintah County							
Ozone	8-hour[1]	0.064 ppm	0.067 ppm	0.083 ppm	0.076 ppm	0.073 ppm	0.070 ppm	108%
Nitrogen Dioxide	1-hour[2]	19 ppb	21 ppb	20 ppb	14 ppb	19 ppb	100 ppb	18%

Source: EPA 2015b
*Exceptional events have been excluded
ppb: parts per billion
ppm: parts per million

(1) Fourth Highest Annual Daily Maximum 8-hour ozone concentration
(2) 98th percentile of 1-hour daily maximum concentrations
(3) Most recent 3-year average (20015 to 2017) percent of NAAQS

While the formal designation has not occurred yet, it is likely to happen during this planning process. The EPA is expected to formally designate the ozone nonattainment areas on April 30, 2018. After nonattainment designation, The Utah Division of Air Quality (UDAQ) will develop a State Implementation Plan (SIP). The SIP is a set of regulations and strategies used by the state to reduce air pollution in areas that do not meet NAAQS. Additionally, all federal actions in nonattainment areas, including those on BLM managed lands, will need to comply with General Conformity Rules under the Clean Air Act to demonstrate that the action conforms with the SIP. The SIP and air quality conformity analysis for federal actions are anticipated over time to help improve or maintain air quality in the nonattainment areas.

3.5 VEGETATION (INCLUDING NOXIOUS WEEDS, RIPARIAN AND WETLANDS)

Existing conditions for vegetation in the planning area are described in the 2015 Final EIS in Section 3.8 (Vegetation, page 3-64), as well as in the 2016 Draft EIS (BLM 2016), Chapter 3, Sections 3.6.2 (Vegetation Communities – page 3-133) and Section 3.6.3 (Invasive and Noxious Species – page 3-138). This section identifies additions or changes which are applicable to the analysis and decision-making process.

The BLM implements projects to restore or improve Greater Sage-Grouse habitat. **Table 3-6** identifies the treatments conducted in the past 5 years in Utah specifically to manage for Greater Sage-Grouse. These projects are developed at the local level and are designed to improve the resistance and resilience of sagebrush landscapes. Many of these projects are implemented through the State of Utah's Watershed Restoration Initiative partnership.

Table 3-6
Acres of Greater Sage-Grouse Conservation Actions

Fiscal Year	Conifer Removal	Fuel Breaks	Invasive Species Removal	Habitat Protection	Habitat Restoration	Total
2013	8,463	805	1,502	538	5,073	16,381
2014	32,255	2,902	0	2,439	19,626	57,222
2015	16,505	4,150		1,494	10,148	32,297
2016	53,566	0	480	3,108	16,617	73,771
2017	51,219	2,001	10,391	24,991	1,800	90,402
Total	**162,008**	**9,858**	**12,373**	**32,570**	**53,264**	**270,073**

Source: National Fuels Reporting Operations Reporting System (NFPORS)

As noted in the table, the majority of treated acres relate to removal of encroaching conifer and restoring habitat. These treatments are intended to improve connectivity between habitat patches. There are approximately 7.3 million acres mapped as PHMA and GHMA in Utah. According to state-wide LANDFIRE vegetation data reflecting existing vegetation, there are 3.1 million acres (approximately 41%) which are associated with vegetation communities that do not include sagebrush as either the dominant vegetation type or as a primary component species of the vegetation community. While areas mapped as PHMA and GHMA encompass seasonal habitats and transition zones for Greater Sage-Grouse, they are also interspersed with areas that do not provide direct habitat at the site-scale (sagebrush) but may provide dispersal options or seasonal migration opportunities. Ninety-nine percent of the data points that comprise non-sagebrush vegetation types are less than 50 acres, reflecting the nature of habitat comprised of multiple interspersed vegetation types that often intermingle. However,

the 1 percent of patches larger than 50 acres include nearly 86 percent of the area lacking a sagebrush component within the mapped occupied areas. This accounts for nearly 2.6 million acres of vegetation within Utah's PHMA and GHMA that does not provide the necessary sagebrush components for Greater Sage-Grouse site-scale habitat needs. However, these areas may still provide important contributions to the mid- and fine-scale habitat levels for large, intact areas that are needed to support Greater Sage-Grouse populations. Such a determination would need to be made on a case-by-case basis following a multi-scale habitat assessment.

3.6 OTHER SPECIAL STATUS SPECIES

Existing conditions for other special status species in the planning area are described in the 2015 Final EIS in Section 3.9 (Other Special Status Species, page 3-99), as well as in the 2016 Draft EIS (BLM 2016), Chapter 3, Sections 3.6.1 (Special Status Species - page 3-128). This section identifies changes which are applicable to the analysis and decision-making process.

Table 3.33 in the 2015 Final EIS, the following species are no longer federally listed as threatened, endangered, proposed, petitioned, and candidate plant and animal species in the planning area:

- Greater Sage-Grouse
- Coral Pink Sand Dunes tiger beetle
- Least chub
- Boreal toad
- Goose Creek milk-vetch
- Graham's beardtongue
- White River beardtongue (penstemon)

3.7 WILD HORSES AND BURROS

Existing conditions for wild horses and burros in the planning area are described in the 2015 Final EIS in Section 3.11 (Wild Horses and Burros, page 3-142). This section identifies changes which are applicable to the analysis and decision-making process.

The acreage associated with the 19 herd management areas presented in Table 3.42 in the 2015 Final EIS are still accurate, however, the current size estimates have changed. **Table 3-7** displays the 2018 population estimates in comparison to appropriate management level by each herd management area. In addition, the table shows the last date a gather was conducted on the given herd management areas.

Table 3-7
Wild Horses and Burros Population Levels

Herd Management Area	Upper Appropriate Management Level		Current Herd Size (2018 Estimate)		Last Gather (month/year)	Sage-Grouse Population Area
	Horses	Burros	Horses	Burros		
Bible Spring	60	0	154	0	Feb-18	Hamlin Valley
Canyon Lands	0	100	0	210		N/A
Cedar Mountain	390	0	784	0	Feb-17	N/A
Chloride Canyon	30	0	133	0	Jul-17	N/A
Chokecherry	30	0	229	0	Jan-11	Hamlin Valley

Table 3-7
Wild Horses and Burros Population Levels

Herd Management Area	Upper Appropriate Management Level		Current Herd Size (2018 Estimate)		Last Gather (month/year)	Sage-Grouse Population Area
	Horses	Burros	Horses	Burros		
Confusion	115	0	465	0	Sep-10	N/A
Conger	80	0	158	0	May-17	N/A
Four Mile	60	0	49	0	Feb-18	Hamlin Valley
Frisco	60	0	166	0	Jan-17	N/A
Kingtop	40	0	12	0		N/A
Mount Elinor	25	0	128	0	Jan-11	N/A
Muddy Creek	125	0	189	0	Jul-09	N/A
North Hills	36	0	232	0	Dec-10	N/A
Onaqui Mountain	210	0	457	0	Feb-12	Sheeprocks
Range Creek	125	0	378	0	Jul-06	Carbon
Sinbad	0	70	0	150	Apr-16	N/A
Sulphur	250	0	974	0	Jan-17	Hamlin Valley
Swasey	100	0	372	0	Feb-13	N/A
Tilly Creek	50	0	59	0	Feb-18	Hamlin Valley
Total	**1,786**	**170**	**4,939**	**360**	**N/A**	**N/A**

3.8 WILDLAND FIRE MANAGEMENT

Existing conditions associated with wildland fire in the planning area are described in the 2015 Final EIS in Section 3.14 (Wildland Fire Management, page 3-154). This section identifies changes which are applicable to the analysis and decision-making process.

The geographic extent of fire and fuels analysis is the same as that of the 2015 Final EIS. The BLM acknowledges that there have been changes in vegetation modified by fires and fuels since the 2015 Final EIS. Habitat loss to fire and fuels was covered in the 2015 EIS. Fire and fuels reductions have and continue to occur.

From 2015-2017 there have been 192 additional wildfires that have burned approximately 61,300 acres of Greater Sage-Grouse PHMA and GHMA (see **Table 3-8**), and **Table 3-9**). Nearly 86 percent of the wildfires were fully suppressed before they reached 10 acres in size.

Table 3-8
Wildfires in Greater Sage-Grouse Habitat Management Areas (2015-2017)

Size Class	PHMA		GHMA	
	Number of Fires	Population Areas Affected	Number of Fires	Population Areas Affected
A - 0 to .25 acres	80	Bald Hills, Box Elder, Carbon, Emery, Hamlin, Panguitch, Parker, Rich, Sheeprocks, Strawberry, Uintah	32	Carbon, Rich, Sheeprocks, Strawberry, Uintah
B - .26 to 9.9 acres	34	Bald Hills, Box Elder, Emery, Panguitch, Parker, Rich, Sheeprocks, Strawberry, Uintah	19	Carbon, Rich, Sheeprocks, Uintah

Table 3-8
Wildfires in Greater Sage-Grouse Habitat Management Areas (2015-2017)

Size Class	PHMA		GHMA	
	Number of Fires	Population Areas Affected	Number of Fires	Population Areas Affected
C – 10 to 99 acres	11	Bald Hills, Box Elder, Carbon, Rich, Sheeprocks, Uintah	4	Carbon, Sheeprocks, Uintah
D – 100 to 299 acres	6	Box Elder, Rich, Sheeprocks	0	N/A
E – 300 to 999 acres	2	Parker, Rich	0	N/A
F – 1000 to 4999 acres	3	Parker, Sheeprocks	0	N/A
G – 5000+ acres	1	Box Elder	0	N/A
Total	**137**		**55**	

Source: BLM GIS Data

Table 3-9
Acres of Wildfire in PHMA and GHMA (2015-2017)

Population Area	PHMA	GHMA	Total
Bald Hills	14	0	14
Box Elder	32,456	0	32,456
Carbon	0	43	43
Emery	325	23	348
Hamlin Valley	0	0	0
Ibapah	0	0	0
Panguitch	9,192	0	9,192
Parker Mountain	3,526	0	3,526
Rich	725	0	725
Sheeprocks	11,764	11	11,776
Strawberry	0	0	0
Uintah	417	2,765	3,182
Total	**58,419**	**2,842**	**61,262**

Source: BLM GIS Data

In the same time period, approximately 173,100 acres in Greater Sage-Grouse habitat management areas have been treated to improve habitat for the species. Since the BLM's 2015 plan amendment was completed for Utah, more acres in Greater Sage-Grouse habitat management areas have been treated with the goal of improving/creating habitat than has been lost to wildfire. Based on published accounts in Utah, treated areas can be quickly used by Greater Sage-Grouse as habitat, and can improve Greater Sage-Grouse vital rates (Sandford et al., 2017; Sandford et al., 2015).

3.9 WILDERNESS CHARACTERISTICS

Inventories for wilderness characteristics noted below were conducted between 1999 and the present and reflect the most up-to-date lands with wilderness characteristics baseline information for this planning area. In addition to the inventories conducted for the purposes of land use planning, lands with wilderness characteristics inventories will be updated for site-specific project environmental analyses

that are conducted in the planning area to determine if a project will have impacts on lands with wilderness characteristics identified through previous or updated inventory efforts.

There are 52 units totaling 197,240 acres of BLM-administered lands in PHMA or GHMA outside of wilderness and WSAs that have been inventoried and found to have wilderness characteristics. Of those, 13 units totaling 52,240 acres are natural areas[2] managed for wilderness characteristics protection in the Greater Sage-Grouse Uintah Population Area (e.g., some land uses are restricted or prohibited under the Vernal RMP). The remaining 145,000 acres in 39 units are lands with wilderness characteristics where the BLM has made a determination not to apply specific management to protect the wilderness characteristics or are areas where no determination has yet been made in an RMP (see 2015 Final EIS Map 3.15-1). **Table 3-10** summarizes natural areas that overlap mapped PHMA habitat. GHMA habitat does not overlap any identified lands with wilderness characteristics that are managed to protect those characteristics (natural areas). **Tables 3-11** and **3-12** summarize lands with wilderness characteristics that overlap PHMA and GHMA, respectively.

Table 3-10
Natural Areas Overlapping PHMA

Natural Area	Acres Overlapping PHMA	Population Area
Bourdette Draw	6,231	Uintah
Bull Canyon	2,473	Uintah
Cold Spring Mountain	4,553	Uintah
Daniels Canyon	2,115	Uintah
Dead Horse Pass	886	Uintah
Diamond Breaks	507	Uintah
Diamond Mountain	24,469	Uintah
Lower Flaming Gorge	1,812	Uintah
Moonshine Draw	3,679	Uintah
Mountain Home	3,071	Uintah
Stuntz Draw	1,986	Uintah
Vivas Cake Hill	121	Uintah
Wild Mountain	336	Uintah

[2] In Utah, natural areas are lands with wilderness characteristics outside of WSAs that are identified in approved RMPs to be managed to maintain, preserve and protect those characteristics. This is an effort to recognize these discretionary decisions with a better, simpler reference. Wilderness Areas and WSAs are formal designations that are managed in a prescribed manner. To avoid confusing these official designations with discretionary decisions, the BLM Utah uses this term to distinguish between formal designations (e.g., Wilderness Areas) and a discretionary management category (i.e., natural areas).

Table 3-11
Lands with Wilderness Characteristics Overlapping PHMA

Lands with Wilderness Characteristics Unit	Acres Overlapping PHMA	Population Area
Cold Spring Draw West	1,005	Carbon
Cottonwood Ridge	3,089	Carbon
Currant Canyon	465	Carbon
Deep Creek Mountains	1,521	Ibapah
Desolation Canyon	1,414	Carbon
Granite Peak	194	Bald Hills
Hamlin	468	Hamlin Valley
Indian Swale	3,662	Carbon
Limestone Cliffs Ext	180	Parker
Lion Peak	6,045	Sheeprocks
Needle Mountain	1,305	Hamlin Valley
Paradise Mountain	139	Hamlin Valley
Phonolite Hill	76	Parker
Pilot Range	36,617	Box Elder
Pole Canyon	2,220	Parker
Sheep Canyon	105	Carbon
South Horn Mtn. Unit B	28	Emery
South Wah Wah	1,725	Hamlin Valley
Split Mountain Benches	282	Uintah
Steamboat Mountain	2	Hamlin Valley
Tolivers #2	1,257	Uintah
Upper Kanab Creek	814	Panguitch
Wildcat Knolls Ext.	37	Emery

Table 3-12
Lands with Wilderness Characteristics Overlapping GHMA

Lands with Wilderness Characteristics Unit	Acres Overlapping GHMA	GRSG Population
Archy Bench_A	1,395	Uintah
Badlands Cliffs	4,009	Carbon
Cold Spring Draw East	2,306	Carbon
Cold Spring Draw West	4,127	Carbon
Cottonwood Ridge	2,958	Carbon
Cripple Cowboy	1,245	Uintah
Currant Canyon	2,073	Carbon
Deep Creek Mountains	159	Ibapah
Desolation Canyon	9,801	Carbon
Duck Rock	51	Uintah
Flume Canyon	1	Uintah
Hideout Canyon	79	Uintah

Table 3-12
Lands with Wilderness Characteristics Overlapping GHMA

Lands with Wilderness Characteristics Unit	Acres Overlapping GHMA	GRSG Population
Indian Swale	1,569	Carbon
Jack Canyon	1,222	Carbon
Lower Bitter Creek	252	Uintah
Mexico Point	290	Uintah
Pete's Wash	450	Carbon
Sheep Canyon	1,439	Carbon
Sheep Wash	395	Carbon
Sweet Water	2,495	Uintah
Westwater Creek	414	Uintah
White River	705	Uintah
Wolf Point	3,835	Uintah

3.10 LIVESTOCK GRAZING/RANGE MANAGEMENT

The existing condition of livestock grazing in the planning area is described in the 2015 Final EIS in Section 3.16 (pgs. 3-165 through 3-171**)**. Since 2015, BLM has continued to manage livestock according to the grazing regulations (C.F.R. 4100) and the direction in the various RMPs. In general, the existing conditions of livestock grazing in Utah remain the same as described in the 2015 Final EIS. BLM has continued to issue grazing permit renewals consistent with the regulation and in conformance with the RMPs, including the management in the 2015 ROD/ARMPA.

3.11 RECREATION

The existing condition of recreation in the planning area is described in the 2015 Final EIS in Section 3.17 (pgs. 3-171 through 3-177). In general, recreation activities and levels in Utah remains the same as described in the 2015 EIS. BLM Utah has continued to issue special recreation permits at levels commensurate with the 2015 numbers. Special recreation permits authorized since 2015 have been in conformance with the actions in the 2015 amendment, resulting in neutral effects on Greater Sage-Grouse and its habitat.

Panguitch Population Area

On December 4, 2017, portions of the Grand Staircase-Escalante National Monument were modified by Proclamation 9682. Prior to the modification, approximately 5,860 acres of PHMA in the Panguitch Population Area overlapped the monument. After the modification, approximately 1,900 acres of PHMA overlap the monument boundaries. Given the dispersed nature of the recreation in the area of overlap it is not anticipated that the reduction will substantively change the nature or level of recreation on the acres of PHMA that no longer overlap the monument.

Sheeprocks Population Area

Due to the broad-scale nature of the state-wide habitat mapping efforts, portions of the GHMA identified in 2015 overlapped areas previously designated as open for cross-country OHV use. Portions of the Five Mile Pass area were designated as open to cross-country OHV use through a land use plan amendment that was completed in 1992. Since that time, the Five Mile Pass area has provided an

important destination for motorized recreation. A portion of the designated open area was changed to limited as part of the 2015 amendment, creating a managerial conflict with an area recognized as a destination recreation resource for over 20 years.

Similarly, the Little Sahara Recreation Area was designated as open to cross-country OHV use in the sandy areas associated with the large dune complex. Like Five Mile Pass, this area is a recognized and well-known destination for motorized recreation and has been since before completion of the House Range Resource Area Resource Management Plan in 1987. Due to mapping in the 2015 Greater Sage-Grouse effort, small portions around the periphery of the designated recreation area were mapped as GHMA and OHV use was limited to existing routes. The 2015 change to limited created a managerial conflict for a designated recreation area.

3.12 COMPREHENSIVE TRAVEL AND TRANSPORTATION MANAGEMENT

The existing condition of the travel and transportation network in the planning area is described in the 2015 Final EIS in Section 3.18 (pgs. 3-177 through 3-180). The language in the 2015 Final EIS is still applicable, with the following changes and information available since 2015.

Table 3.62 of the 2015 Final EIS displays OHV designations; those were changed as part of the September 2015 Approved Resource Management Plan Amendment (ARMPA). The updated acres are in MA-TTM-1 in the 2015 ARMPA, and are also shown in **Chapter 2** of this RMPA/EIS under MA-TTM-1 for the No Action Alternative. These areas designations related to the conflicts identified in the recreation section above for the Five Mile Pass and Little Sahara areas.

Another change since the 2015 FEIS was initiation of several travel management processes throughout the State of Utah, including several that overlap portions of both PHMA and GHMA in the Carbon, Uintah, and Sheeprocks areas. These implementation-level planning processes will address route designations and consideration of the travel network in areas that overlaps PHMA and some GHMA.

3.13 LANDS AND REALTY

The existing condition of Lands and Realty in the planning area is described in the 2015 Final EIS in Section 3.19 (Lands and Realty, pgs. 3-180 thru 3-190). The lands and realty program is essentially the same as was described in the 2015 FEIS and the program's impacts on Greater Sage-Grouse are also essentially the same. Land use authorization requests are customer driven. Within the planning area most authorizations processed are primarily for roads, electric distribution lines, small buried fiber optic lines, and communications sites. Occasionally ROWs are sought for major transmission lines (e.g., 500 kV electric transmission), large-scale pipeline projects, and other similar infrastructure to transport resources through the state.

Since 2015, several site-specific lands and realty actions have been completed while conforming to the avoidance, minimization (e.g., disturbance cap, tall structure, required design features, etc.), and compensation management in the 2015 ARMPA. This has included installing new local distribution power lines, adding new communication infrastructure to existing developed communication sites, development of pipelines that are aligned with existing disturbance and development of fiber-optic lines.

Additionally, two large interstate transmission line projects have been approved, both of which transverse a portion of both PHMA and GHMA. Construction has not yet begun on the TransWest

Express and Energy Gateway South projects. A description of the impacts of these projects on Greater Sage-Grouse is available in the associated environmental documents for each project. A smaller (138 kV) intrastate transmission line in southern Utah was approved during development of the 2015 ARMPA and construction is nearing completion.

Several sections of the 2015 Final EIS Chapter 3 for lands and realty displays land management decisions that predated completion of the ARMPA (e.g., avoidance and exclusion areas, number and acres of designated right-of-way corridors). Those numbers were changed as part of the September 2015 ARMPA. The updated acres are in the corresponding sections of the 2015 ARMPA.

3.14 RENEWABLE ENERGY

The existing condition of renewable energy in the planning area is described in the 2015 Final EIS in Section 3.20 (Renewable Energy, pgs. 3-190 thru 3-199). Similar to lands and realty, land use authorization requests for renewable energy projects are generally customer driven. The renewable energy program is essentially the same as was described in the 2015 FEIS based on the generally low potential for renewable energy development on Greater Sage-Grouse habitat in the state. One new project since 2015 relates to a potential lease of an area north of the Bald Hills population for solar development. The consideration of that project is concurrent with this planning effort.

3.15 LEASABLE MINERALS (OIL AND GAS, NONENERGY LEASABLE MINERALS, COAL, AND OIL SHALE AND TAR SANDS)

Development of mineral resources has continued since 2015, largely focusing on maintaining existing operations while in some instances beginning the exploratory studies for expansion of existing operations. As a resource whose development is largely controlled by market demand, there has not been substantial changes in demand for leasable minerals since 2015. Based on these minimal changes, the existing conditions are essentially the same as described in the 2015 EIS.

3.15.1 Oil and Gas

Information related to mineral potential has not changed since completion of the 2015 Final EIS. That information can be found in the 2015 Final EIS in Chapter 3, Section 3.21.1 in a series of tables applicable to the decision-area statewide, as well as to the four Greater Sage-Grouse population areas with the highest potential for oil and gas development. Other tables that include oil and gas leasing categories and the acres of existing leases, leases held by production, and number of wells have been updated below (**Tables 3-13** through **3-22**). The text surrounding the various tables is either repetitive of the table's content, or still describes the situation for the given area.

Table 3-13
Oil and Gas Federal Activity in the Decision Area (as of March 2018)

	PHMA	GHMA	Decision Area
Existing Oil and Gas Leases (acres)	127,949	245,981	373,930
Leases Held by Production (acres)	33,224	188,164	221,388
Percent Held by Production	26%	77%	59%
Number of Existing Wells	234	931	1,165

Sources: BLM 2018

Table 3-14
Oil and Gas Leasing Categories in the Decision Area

Category	PHMA	GHMA	Decision Area
Open to leasing, subject to standard terms and conditions	0	188,600	188,600
CSU and/or TL	0	261,300	261,300
NSO	3,023,700	28,600	3,052,300
Closed to Leasing	100,400	27,800	128,200

Sources: BLM 2015 (ARMPA data sets)

Table 3-15
Oil and Gas Federal Leases and Wells in the Uintah Population Area (as of March 2018)

	PHMA	GHMA	Decision Area
Existing Oil and Gas Leases (acres)	50,683	197,418	248,101
Leases Held by Production (acres)	9,503	153,381	162,884
Percent Held by Production	19%	78%	66%
Number of Existing Wells	55	606	661

Sources: BLM 2018

Table 3-16
Oil and Gas Leasing Categories in the Uintah Population Area

Category	PHMA	GHMA	Decision Area
Open to leasing, subject to standard terms and conditions	0	104,000	104,000
CSU and/or TL	0	206,200	206,200
NSO	341,100	6,300	347,400
Closed to Leasing	56,400	12,400	68,800

Sources: BLM 2015 (ARMPA data sets)

Table 3-17
Oil and Gas Federal Leases and Wells in the Carbon Population Area (as of March 2018)

	PHMA	GHMA	Decision Area
Existing Oil and Gas Leases (acres)	15,053	44,317	59,370
Leases Held by Production (acres)	12,940	30,718	43,658
Percent Held by Production	86%	69%	74%
Number of Existing Wells	167	325	492

Sources: BLM 2018

Table 3-18
Oil and Gas Leasing Categories in the Carbon Population Area

Category	PHMA	GHMA	Decision Area
Open to leasing, subject to standard terms and conditions	0	22,500	22,500
CSU and/or TL	0	43,300	43,300
NSO	154,100	9,300	163,400
Closed to Leasing	5,900	15,300	21,200

Sources: BLM 2015 (ARMPA data sets)

Table 3-19
Oil and Gas Federal Leases and Wells in the Emery Population Area (as of March 2018)

	PHMA	GHMA	Decision Area
Existing Oil and Gas Leases (acres)	12,252	2,928	15,180
Leases Held by Production (acres)	648	2,928	3,576
Percent Held by Production	5%	100%	24%
Number of Existing Wells	2	0	2

Sources: BLM 2018

Table 3-20
Oil and Gas Leasing Categories in the Emery Population Area

Category	PHMA	GHMA	Decision Area
Open to leasing, subject to standard terms and conditions	0	7,900	7,900
CSU and/or TL	0	50	50
NSO	84,000	1,600	85,600
Closed to Leasing	0	0	0

Sources: BLM 2015 (ARMPA data sets)

Table 3-21
Oil and Gas Federal Leases and Wells in the Rich Population Area (as of March 2018)

	PHMA	GHMA	Decision Area
Existing Oil and Gas Leases (acres)	4,448	0	4,448
Leases Held by Production (acres)	2,116	0	2,116
Percent Held by Production	48%	-	48%
Number of Existing Wells	10	0	10

Sources: BLM 2018

Table 3-22
Oil and Gas Leasing Categories in the Rich Population Area

Category	PHMA	GHMA	Decision Area
Open to leasing, subject to standard terms and conditions	0	0	0
CSU and/or TL	0	300	300
NSO	328,800	200	329,000
Closed to Leasing	0	0	0

Sources: BLM 2015 (ARMPA data sets)

In addition to the updated oil and gas leasing categories, leases and wells, the 2015 Final EIS refers to the levels of reasonably foreseeable development associated with implementation of the 2015 Final EIS No action alternative (see 2015 Final EIS Section 3.21.7 on page 3.218). Because Alternative A (no action) was not selected in 2015, those numbers do not reflect the reasonably foreseeable development scenario given existing management in the ARMPA. The correct reasonably foreseeable development scenario for the 2015 Final EIS Proposed Plan is in Appendix R of that document. For this planning process, the reader is referred to Table R.1, Table R.2, and Table R.7 in the 2015 Final EIS Appendix R.

3.15.2 Nonenergy Leasable Minerals

Information related to mineral potential has generally not changed since completion of the 2015 Final EIS and can be found in Section 3.21.2 on page 3-208. A reference to a current leaseholder for a phosphate mine in PHMA is no longer accurate, since the company JR Simplot has changed its name to Simplot Phosphates LLC. This change, while making the document more accurate, does not change the existing environment and its relationship to the impact analysis.

3.15.3 Coal

Information related to mineral potential has generally not changed since completion of the 2015 Final EIS, and can be found in Section 3.21.3 on page 3-212. One change since the 2015 Final EIS is the removal of portions of the Grand Staircase-Escalante National Monument. The 2015 Final EIS notes that coal inside the monument boundaries is unacceptable for coal leasing. While the December 2017 proclamation may reduce the size of the monument's boundaries, the specific management of those areas has not been determined and can therefore not be reported here.

3.15.4 Oil Shale and Tar Sands

Information related to mineral potential has not changed substantively since completion of the 2015 Final EIS, and can be found in Section 3.21.6 on page 3-217. An environmental document has been prepared to consider various rights-of-way across BLM-administered land in association with a potential oil shale project on private property.

3.15.5 Locatable Minerals

Existing conditions were described in the 2015 Final EIS in section 3.21.4 pages 3-215 through 3-216. Since FY2016 there has been an increase in the number of mining claims located in the State of Utah. The majority of those mining claims are located outside PHMA and GHMA, though there were two concentrations of new claims in the Sheeprocks area, with one concentration in the northeast GHMA portion and one in the southwest PHMA portion. In addition, since the completion of the 2015 Final EIS,

thirteen locatable mineral notices have been accepted and four plans of operations authorized. However, only one notice in within either PHMA or GHMA, situated on the eastern edge PHMA in the Sheeprocks area.

3.16 SOCIAL AND ECONOMIC CONDITIONS

The Socioeconomic conditions within the planning area are described in the 2015 Final EIS in Section 3.23 (Social and Economic Conditions (Including Environmental Justice), pgs. 3-321 through thru 3-267). Social and economic conditions are further identified in the Draft EIS for the Sagebrush Focal Area withdrawal in 2016, Chapter 3, Section 3.5 (Social and Economic Conditions), page 3-9, and specifically Section 3.5.17, Section 3.5.18, and Section 3.5.19.

BLM-administered lands provide a range of goods and services that benefit society in a variety of ways. Some of these goods and services, such as timber and minerals, are bought and sold in markets, and hence have a readily observed economic value (as documented in the sections above); others have a less clear connection to market activity, even though society derives benefits from them. In some cases, goods and services have both a market and a non-market component value to society. The socioeconomic conditions in Utah are essentially the same as described in the 2015 EIS, with the following changes.

Since 2015, all counties in Utah have prepared county-specific RMPs to identify the county's vision for management of public lands within their borders. This updates information on page 3-241 of the 2015 Final EIS Chapter 3. These plans are recognized and named in **Chapter 1**.

The 2015 Final EIS assumed that the federal portion of the Alton coalfield would start production on federal minerals in 2016 (see page 3-255). This did not occur and the environmental review of the lease nomination is not complete.

Since 2015, there have been some changes in market conditions with respect to demand and prices of major mineral commodities that are commonly extracted in Utah. Prices for crude oil have risen to some degree, although prices for natural gas have remained fairly steady at a low level. In addition to these market factors, normal fluctuations in the prices of other commodities such as gold and other minerals will continue to play a role in the degree to which new exploration, development, and production will occur in Utah. The most up-to-date, detailed statistics and trends have been published in the 2018 Economic Report to the Governor, prepared by the Utah Economic Council (this report is available online at http://gardner.utah.edu/wp-content/uploads/2018-ERG-Report.pdf).

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Chapter 4. Environmental Consequences

4.1 Introduction

This chapter presents the anticipated direct and indirect impacts on the environment from implementing the alternatives in **Chapter 2**. The purpose of this chapter is to describe to the decision-maker and the public how the environment could change if either of the alternatives were implemented. It is meant to aid in the decision of which RMPA, if any, to adopt.

This chapter is organized by topic, based on the affected resources identified in **Chapters 1** and **3**. Only those issues listed in **Table 1-3** are carried forward for analysis in this chapter.

Impact analysis is a cause-and-effect process. The detailed impact analyses and conclusions are based on the following:

- The BLM planning team's knowledge of resources and the project area
- Literature reviews
- Information provided by experts in the BLM, other agencies, cooperating agencies, interest groups, and concerned citizens

The baseline used for the impact analysis is the current condition or situation, as described in **Chapter 3**. Impacts on resources and resource uses are analyzed and discussed commensurate with resource issues and concerns identified through the NEPA process. At times, impacts are described in qualitative terms or using ranges of potential impacts.

4.2 Analytical Assumptions

Several overarching assumptions have been made in order to facilitate the analysis of the potential impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur in the planning area during the planning period. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for each alternative, as described in **Chapter 2**.

The following general assumptions apply to all resource categories:

- Sufficient funding and personnel would be available for implementing the final decision.
- Implementation-level actions necessary to execute the RMP-level decisions in this RMPA/EIS would be subject to further environmental review, including that under NEPA.
- Direct and indirect impacts of implementing the RMPA would primarily occur on public lands administered by the BLM in the planning area, though environmental effects may also affect adjacent non-BLM-administered lands. As noted in **Chapter 1**, the management actions apply only to BLM-administered public lands and mineral estates (minerals-related actions only).
- The BLM would carry out appropriate maintenance for the functional capability of all developments.

- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.
- Restrictions (such as siting, design, and mitigation measures) would apply, where appropriate, to surface-disturbing activities associated with land use authorizations and permits issued on BLM-administered lands and federal mineral estate.
- GIS data have been used in developing acreage calculations and to generate the figures in **Appendix A**. Calculations depend on the quality and availability of data. Acreage figures and other numbers are approximate projections for comparison and analysis only; readers should not infer that they reflect exact measurements or precise calculations. In the absence of quantitative data, best professional judgment was used. Impacts were sometimes described using ranges of potential impacts, or they were described qualitatively, when appropriate.

Analytical assumptions and indicators specific to individual resources and resource uses are the same as those identified in the methods of analysis section for each resource/use in the 2015 Final EIS. Assumptions or indicators specific to this analysis, if any, are presented under the applicable resources/resource uses sections below.

4.3 General Method for Analyzing Impacts

Potential impacts are described in terms of type, context, duration, and intensity, which are generally defined below.

Type of impact—Impacts are characterized using the indicators described at the beginning of each resource impact section. The presentation of impacts for key planning issues is intended to provide the BLM decision-maker and reader with an understanding of the multiple use trade-offs associated with each alternative. Unless otherwise noted, the indicators used in this analysis correspond to the same indicators identified for resources and uses in the 2015 Final EIS.

Context—This describes the area or site-specific, local, planning area-wide, or regional location where the impact would occur. Site-specific impacts would occur at the location of the action; local impacts would occur in the general vicinity of the action area; planning area-wide impacts would affect a greater portion of decision area lands in Utah; and regional impacts would extend beyond the planning area boundaries.

The geographic extent of this environmental analysis is substantially similar to that in the 2015 Final EIS, with the exception of the portions of the 2015 planning area that were in Wyoming. Approximately 54,800 acres administered by the Ashely National Forest and 22,000 acres administered by the Uinta/Wasatch/Cache National Forest that extended into Wyoming are not part of the planning area for this process. Additionally, approximately 71,900 acres administered by the Sawtooth National Forest in Box Elder County are included in the planning area for this process that were part of the Idaho planning area in 2015. This is a net decrease of approximately 4,900 acres (less than 0.01 percent of the planning area, and 0.12 percent of the decision area).

Additionally, as a result of implementing the adaptive management triggers, 111,900 acres (2 percent of all PHMA) changed from GHMA to PHMA compared with the 2015 Final EIS. Of this, only 53,900 acres are administered by the BLM (1.6 percent of PHMA on BLM-administered lands).

Because of these changes, acreage presented in this Draft EIS may not align with those in the 2015 Final EIS. However, given the small degree of change, the planning and decision area impacts described in the 2015 Final EIS are not different. Differences in potential site-level impacts will be called out as necessary.

Duration—This describes the associated time period of an impact, either short term or long term. Unless otherwise noted, short term is defined as anticipated to begin and end within the first 5 years after the action is implemented; long term is defined as lasting beyond 5 years to the end of or beyond the life of this RMPA/EIS.

Intensity—Rather than categorizing impacts with qualitative statements (e.g., major, moderate, or minor), this analysis describes the impact and its anticipated duration and context. Quantitative data is used to provide additional detail where possible.

Direct and indirect impacts—Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place; indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

For ease of reading, the impacts of the management actions for a particular alternative on a specific resource are generally compared with the status quo or baseline for that resource; however, in order to properly and meaningfully evaluate the impacts under each alternative, its expected impacts should be measured against those projected to occur under the No-Action Alternative. This alternative is the baseline for comparing the alternatives to one another. This is because it represents what is anticipated to occur should the RMPAs not take place.

Irreversible and irretrievable commitment of resources is discussed in **Section 4.7**, Irreversible and Irretrievable Commitment of Resources. Irreversible commitments of resources result from actions in which resources are considered permanently changed; irretrievable commitments of resources result from actions in which resources are considered permanently lost.

4.4 INCOMPLETE OR UNAVAILABLE INFORMATION

The CEQ established implementing regulations for NEPA, requiring that a federal agency identify relevant information that may be incomplete or unavailable for evaluating reasonably foreseeable significant adverse impacts in an EIS (40 CFR 1502.22). If the information is essential to a reasoned choice among alternatives, it must be included or addressed in an EIS, unless the cost of obtaining such information is exorbitant. Knowledge and information is, and would always be, incomplete, particularly with infinitely complex ecosystems considered at various scales.

The best available information pertinent to the decisions to be made was used in developing the RMPA/EIS. The BLM and Forest Service have made a considerable effort to acquire and convert resource data into digital format for use in the RMPA/EIS, both from the BLM and Forest Service themselves and from outside sources.

Under the FLPMA, the inventory of public land resources is ongoing and continuously updated; however, certain information was unavailable for use in developing the RMPA/EIS. This was because inventories either had not been conducted or were not complete. Some of the major types of data that are incomplete or unavailable are the following:

- Comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition
- GIS data used for disturbance calculations on private lands
- A comprehensive inventory of sagebrush lands, which meet the guidelines as recommended by the scientific community. This information is not monitored on a statewide level.
- Site-specific surveys of cultural and paleontological resources

For these resources, estimates were made concerning their number, type, and significance, based on previous surveys and existing knowledge.

In addition, some impacts could not be quantified, given the proposed management actions. Where there was this gap, impacts were projected in qualitative terms or, in some instances, were described as unknown. Subsequent site-specific project-level analyses would provide the opportunity to collect and examine site-specific inventory data to determine appropriate application of LUP-level guidance. In addition, the BLM and other agencies in the planning area continue to update and refine information used to implement this plan.

4.5 IMPACTS FROM NO-ACTION ALTERNATIVE

The impacts of the No-Action Alternative, or current management, of this RMPA/EIS were analyzed as the Proposed Plan in the 2015 Final EIS, and no new information has been identified that would invalidate or change the results of the existing analysis. Therefore, impacts from implementing the No-Action Alternative are substantially the same as those analyzed in the 2015 Final EIS, and are incorporated into this RMPA/EIS by reference.

Table 4-1 shows where the description of the impacts of the No-Action Alternative can be found in the 2015 Final EIS, as well as the 2016 Sagebrush Focal Area Draft EIS (BLM 2016). The table is organized by issue, with rows for each resource topic related to the issue.

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
Sagebrush Focal Area Designations/Withdrawal Recommendation	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Water Resources	Chapter 4, Section 4.7.2 (Water Resources, Alternatives Analysis), page 4-151
	Vegetation (including Noxious weeds; Riparian and Wetlands)	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Livestock Grazing/ Range Management	Chapter 4, Section 4.16.7 (Livestock Grazing/Range Management, Proposed Plans), page 4-246
	Leasable Minerals	Chapter 4, Section 4.21.1 (Oil and Gas, Proposed Plans), page 4-313
	Locatable Minerals	Chapter 4, Section 4.21.4 (Locatable Minerals, Proposed Plans), page 4-352 Further, based on analysis presented in Section 4.2 (Geology and Mineral Resources) of the 2016 Sagebrush Focal Area Draft EIS, withdrawal would not lead to any reduction of mining opportunities compared with not withdrawing.
	Social and Economic Conditions	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372 Further, based on analysis presented in Section 4.3.8 (Economic and Social Impacts in Utah) of the 2016 Sagebrush Focal Area Draft EIS, withdrawal would not lead to any broad economic impacts.
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405
Administering Disturbance and Density Caps	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Water Resources	Chapter 4, Section 4.7.2 (Water Resources, Alternatives Analysis), page 4-151
	Vegetation (including Noxious weeds; Riparian and Wetlands)	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wild Horses and Burros	Chapter 4, Section 4.11.2 (Wild Horses and Burros, Alternatives Analysis), page 4-196
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Visual Resources	Chapter 4, Section 4.13.2 (Visual Resources, Alternatives Analysis), page 4-203
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands with Wilderness Characteristics	Chapter 4, Section 4.15.2 (Wilderness Characteristics, Alternatives Analysis), page 4-222
	Livestock Grazing/ Range Management	Chapter 4, Section 4.16.7 (Livestock Grazing/Range Management, Proposed Plans), page 4-246

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
	Recreation	Chapter 4, Section 4.17.2 (Recreation, Alternatives Analysis), page 4-253
	Comprehensive Travel and Transportation Management	Chapter 4, Section 4.18.2 (Comprehensive Travel and Transportation Management, Alternatives Analysis), page 4-256
	Lands and Realty	Chapter 4, Section 4.19.7 (Lands and Realty, Proposed Plans), page 4-271
	Leasable Minerals	Chapter 4, Section 4.21.1 (Oil and Gas, Proposed Plans), page 4-313 Chapter 4, Section 4.21.2 (Nonenergy Leasable Minerals, Proposed Plans), page 4-329 Chapter 4, Section 4.21.3 (Coal, Proposed Plans), page 4-344
	Locatable Minerals	Chapter 4, Section 4.21.4 (Locatable Minerals, Proposed Plans), page 4-352
	Mineral Materials	Chapter 4, Section 4.21.5 (Mineral Materials, Proposed Plans), page 4-361)
	Social and Economic Conditions	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405
Modifying Habitat Objectives	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Vegetation (including Noxious weeds; Riparian and Wetlands)	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wild Horses and Burros	Chapter 4, Section 4.11.2 (Wild Horses and Burros, Alternatives Analysis), page 4-196
	Livestock Grazing/ Range Management	Chapter 4, Section 4.16.7 (Livestock Grazing/Range Management, Proposed Plans), page 4-246
Waivers, Exceptions, and Modifications on NSO Stipulations	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Air Quality	Chapter 4, Section 4.4.2 (Air Quality, Alternatives Analysis), page 4-136
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Water Resources	Chapter 4, Section 4.7.2 (Water Resources, Alternatives Analysis), page 4-151
	Vegetation (including Noxious weeds; Riparian and Wetlands)	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wild Horses and Burros	Chapter 4, Section 4.11.2 (Wild Horses and Burros, Alternatives Analysis), page 4-196
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Visual Resources	Chapter 4, Section 4.13.2 (Visual Resources, Alternatives Analysis), page 4-203
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands with Wilderness Characteristics	Chapter 4, Section 4.15.2 (Wilderness Characteristics, Alternatives Analysis), page 4-222
	Leasable Minerals	Chapter 4, Section 4.21.1 (Oil and Gas, Proposed Plans), page 4-313
	Social and Economic Impacts	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405
General Habitat Management Areas in Utah	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Air Quality	Chapter 4, Section 4.4.2 (Air Quality, Alternatives Analysis), page 4-136
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Water Resources	Chapter 4, Section 4.7.2 (Water Resources, Alternatives Analysis), page 4-151
	Vegetation	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Visual Resources	Chapter 4, Section 4.13.2 (Visual Resources, Alternatives Analysis), page 4-203
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands with Wilderness Characteristics	Chapter 4, Section 4.15.2 (Wilderness Characteristics, Alternatives Analysis), page 4-222
	Comprehensive Travel and Transportation Management	Chapter 4, Section 4.18.2 (Comprehensive Travel and Transportation Management, Alternatives Analysis), page 4-256
	Lands and Realty	Chapter 4, Section 4.19.7 (Lands and Realty, Proposed Plans), page 4-271
	Renewable Energy	Chapter 4, Section 4.20.7 (Renewable Energy, Proposed Plans), page 4-287

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
	Leasable Minerals	Chapter 4, Section 4.21.1 (Oil and Gas, Proposed Plans), page 4-313 Chapter 4, Section 4.21.2 (Nonenergy Leasable Minerals, Proposed Plans), page 4-329 Chapter 4, Section 4.21.6 (Oil Shale and Tar Sands, Proposed Plans), page 4-366
	Locatable Minerals	Chapter 4, Section 4.21.4 (Locatable Minerals, Proposed Plans), page 4-352
	Mineral Materials	Chapter 4, Section 4.21.5 (Mineral Materials, Proposed Plans), page 4-361)
	Social and Economic Impacts	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405
Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA	Air Quality	Chapter 4, Section 4.4.2 (Air Quality, Alternatives Analysis), page 4-136
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Water Resources	Chapter 4, Section 4.7.2 (Water Resources, Alternatives Analysis), page 4-151
	Vegetation	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wild Horses and Burros	Chapter 4, Section 4.11.2 (Wild Horses and Burros, Alternatives Analysis), page 4-196
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Visual Resources	Chapter 4, Section 4.13.2 (Visual Resources, Alternatives Analysis), page 4-203
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands with Wilderness Characteristics	Chapter 4, Section 4.15.2 (Wilderness Characteristics, Alternatives Analysis), page 4-222
	Recreation	Chapter 4, Section 4.17.2 (Recreation, Alternatives Analysis), page 4-253
	Lands and Realty	Chapter 4, Section 4.19.7 (Lands and Realty, Proposed Plans), page 4-271
	Renewable Energy	Chapter 4, Section 4.20.7 (Renewable Energy, Proposed Plans), page 4-287
	Leasable Minerals	Chapter 4, Section 4.21.1 (Oil and Gas, Proposed Plans), page 4-313 Chapter 4, Section 4.21.2 (Nonenergy Leasable Minerals, Proposed Plans), page 4-329 Chapter 4, Section 4.21.6 (Oil Shale and Tar Sands, Proposed Plans), page 4-366

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
	Locatable Minerals	Chapter 4, Section 4.21.4 (Locatable Minerals, Proposed Plans), page 4-352
	Mineral Materials	Chapter 4, Section 4.21.5 (Mineral Materials, Proposed Plans), page 4-361)
	Social and Economic Conditions	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405
Adaptive Management	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Air Quality	Chapter 4, Section 4.4.2 (Air Quality, Alternatives Analysis), page 4-136
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Water Resources	Chapter 4, Section 4.7.2 (Water Resources, Alternatives Analysis), page 4-151
	Vegetation	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wild Horses and Burros	Chapter 4, Section 4.11.2 (Wild Horses and Burros, Alternatives Analysis), page 4-196
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Visual Resources	Chapter 4, Section 4.13.2 (Visual Resources, Alternatives Analysis), page 4-203
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands with Wilderness Characteristics	Chapter 4, Section 4.15.2 (Wilderness Characteristics, Alternatives Analysis), page 4-222
	Livestock Grazing/ Range Management	Chapter 4, Section 4.16.7 (Livestock Grazing/Range Management, Proposed Plans), page 4-246
	Recreation	Chapter 4, Section 4.17.2 (Recreation, Alternatives Analysis), page 4-253
	Comprehensive Travel and Transportation Management	Chapter 4, Section 4.18.2 (Comprehensive Travel and Transportation Management, Alternatives Analysis), page 4-256
	Lands and Realty	Chapter 4, Section 4.19.7 (Lands and Realty, Proposed Plans), page 4-271
	Renewable Energy	Chapter 4, Section 4.20.7 (Renewable Energy, Proposed Plans), page 4-287
	Leasable Minerals	Chapter 4, Section 4.21.1 (Oil and Gas, Proposed Plans), page 4-313 Chapter 4, Section 4.21.2 (Nonenergy Leasable Minerals, Proposed Plans), page 4-329

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
		Chapter 4, Section 4.21.3 (Coal, Proposed Plans), page 4-344 Chapter 4, Section 4.21.6 (Oil Shale and Tar Sands, Proposed Plans), page 4-366
	Locatable Minerals	Chapter 4, Section 4.21.4 (Locatable Minerals, Proposed Plans), page 4-352
	Mineral Materials	Chapter 4, Section 4.21.5 (Mineral Materials, Proposed Plans), page 4-361)
	Social and Economic Conditions	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405
Prioritization of Mineral Leasing	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Vegetation (including Noxious weeds; Riparian and Wetlands)	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
Land Disposal and Exchanges	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Vegetation	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands with Wilderness Characteristics	Chapter 4, Section 4.15.2 (Wilderness Characteristics, Alternatives Analysis), page 4-222
	Lands and Realty	Chapter 4, Section 4.19.7 (Lands and Realty, Proposed Plans), page 4-271
	Leasable Minerals	Chapter 4, Section 4.21.6 (Oil Shale and Tar Sands, Proposed Plans), page 4-366
	Social and Economic Conditions	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
Managing Habitat to Manage Predation	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Vegetation	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172

Table 4-1
Environmental Consequences for the No-Action Alternative
Incorporated by Reference

Issue	Related Resource Topic	Location
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
Burial of Transmission Lines	Greater Sage-Grouse	Chapter 4, Section 4.3.7 (Special Status Species – Greater Sage-Grouse, Proposed Plans), page 4-113
	Soil Resources	Chapter 4, Section 4.6.2 (Soil Resources, Alternatives Analysis), page 4-147
	Vegetation (including Noxious weeds; Riparian and Wetlands)	Chapter 4, Section 4.8.7 (Vegetation, Proposed Plans), page 4-168
	Other Special Status Species	Chapter 4, Section 4.9.2 (Other Special Status Species, Alternatives Analysis), page 4-172
	Fish and Wildlife	Chapter 4, Section 4.10.2 (Fish and Wildlife, Alternatives Analysis), page 4-184
	Cultural Resources	Chapter 4, Section 4.12.2 (Cultural Resources, Alternatives Analysis), page 4-200
	Visual Resources	Chapter 4, Section 4.13.2 (Visual Resources, Alternatives Analysis), page 4-203
	Wildland Fire Management	Chapter 4, Section 4.14.7 (Wildland Fire Management, Proposed Plans), page 4-218
	Lands and Realty	Chapter 4, Section 4.19.7 (Lands and Realty, Proposed Plans), page 4-271
	Renewable Energy	Chapter 4, Section 4.20.7 (Renewable Energy, Proposed Plans), page 4-287
	Socioeconomics	Chapter 4, Section 4.23 (Social and Economic Impacts (Including Environmental Justice)), page 4-372
	Tribal Interests	Chapter 4, Section 4.24.2 (Tribal Interests), page 4-405

4.6 IMPACTS FROM MANAGEMENT ALIGNMENT ALTERNATIVE

Table 4-2, below, is organized by issue, like **Table 4-1**, and summarizes if and how an action outlined in the Management Alignment Alternative was previously analyzed in either the 2015 Final EIS or 2016 Draft EIS. The table also identifies if any issue was not sufficiently analyzed and needs further analysis in this RMPA/EIS. If issues require further analysis, the remainder of **Section 4.6**, below, provides that additional information.

Table 4-2
Management Alignment Alternative Issues Already Analyzed in the 2015 Final EIS and 2016 Draft EIS

Management Alignment Alternative	How Considered in 2015 Final EIS and 2016 Draft EIS
Sagebrush Focal Area Designations/Withdrawal Recommendations	Neither Alternative D nor Alternative E1 included the presence of SFAs with the corresponding management (recommendation for withdrawal, no exceptions to NSO, prioritization; see page 2-206, and 2-217). In addition, both Alternative D and Alternative E1 considered exceptions beyond what was considered for SFAs or under the Proposed Plan, allowing consideration of development if there were no impacts on Greater Sage-Grouse or if impacts were minimized (see 2015 Final EIS Appendix H). Further, the 2016 Sagebrush Focal Area Draft EIS included analysis for not moving forward with a withdrawal. As noted on page 4-53 of the 2016 Draft EIS, "no future mines are projected to be developed in the proposed Utah withdrawal areas during the 20-year period of the proposed withdrawal if a withdrawal is not implemented. Based on the projection that there would not be any future mines developed in the Utah withdrawal area, even if a withdrawal is not implemented, there would not be any economic or tangible social impacts from future mining operations in the Utah socioeconomic analysis area." Applicable analyses from the 2015 Final EIS and 2016 Draft EIS explain the impacts from these actions, and are incorporated by reference. No additional analysis is needed.
Administering Disturbance and Density Caps	The 2015 Final EIS Alternatives B, C (page 2-95) and Proposed Plan analyze the 3 percent disturbance cap (page 2-17 and 2-18), and Alternative E1 considers a 5 percent disturbance cap (page 2-95). While the potential protective effects of the cap from the 2015 Final EIS will continue in the Management Alignment Alternative, the exception language present in this RMPA/EIS was not considered in the 2015 Final EIS. None of the 2015 Final EIS alternatives considered including an exception that allows for development to exceed the cap if the project, based on location and design features, improves the condition of Greater Sage-Grouse habitat.
Modifying Habitat Objectives	Alternative D includes an objective to "maintain or restore vegetation to provide habitat for lekking, nesting, brood rearing, winter, and transition areas" and specifies that the "desired cover percentages and heights for sagebrush, grasses, and forbs in seasonal habitats will be managed to meet habitat guidelines from scientific literature (e.g., Connelly et al. 2000 and Hagen et al. 2007), where such standards can be met" (page 2.85 and 2-86). It goes on to note that "adjustments from the guidelines may be made, but must be based on documented regional variation of habitat

Table 4-2
Management Alignment Alternative Issues Already Analyzed in the 2015 Final EIS and 2016 Draft EIS

Management Alignment Alternative	How Considered in 2015 Final EIS and 2016 Draft EIS
	characteristics (e.g., sagebrush type, ecological site potential), quantitative data from population and habitat monitoring, and evaluation of local research" (page 2-86). Applicable analyses from the 2015 Final EIS explain the impacts from these actions (see 2015 Final EIS at 4-115 and 4-132 – 4-133), and are incorporated by reference. No additional analysis is needed.
Waivers, Exceptions, and Modifications for NSO Stipulations	In the 2015 Final EIS, Alternatives A, D, E and the Proposed Plan analyze waivers, exceptions, and modifications on NSO stipulations. In these instances, it is disclosed that oil and gas may be developed if it would reduce impacts on Greater Sage-Grouse. Applicable analyses from the 2015 Final EIS explain the impacts from these actions, and are incorporated by reference. Specific changes in management related to removal of GHMA under the Management Alignment Alternative may warrant analysis for specific resources/resource uses. As applicable, such impacts are considered in detail in this chapter.
General Habitat Management Areas in Utah	In the 2015 Final EIS neither Alternative A nor Alternative E1 included management for areas that are GHMA in the current No-Action Alternative. Under both alternatives the areas would be managed by the land use plan actions that pre-date the 2015 amendments, and included analysis to that effect. Additionally, while Alternative D considered some minimization measures, it also included an exception that no management would apply to GHMA if "off-site mitigation is successfully completed in PHMA, following discussion with the BLM and Forest Service and the State of Utah" (page 2-113). Applicable analyses from the 2015 Final EIS explain the impacts from these actions, and are incorporated by reference. Specific changes in management related to removal of GHMA under the Management Alignment Alternative may warrant analysis for specific resources/resource uses. As applicable, such impacts are considered in detail in this chapter.
Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA	The 2015 Final EIS, as part of the Proposed Plan, analyzed this management action, which allowed for exceptions to the application of the Greater Sage-Grouse objectives and actions in areas that lack the "principle habitat components necessary for Greater Sage-Grouse" (page 2-17). However, in the Record of Decision the PHMA component of this action was removed, which is why the No-Action Alternative does not include this exception for PHMA. Nonetheless, the 2015 Final EIS analysis associated with this action is still applicable to consideration of this issue in the Management Alignment Alternative. Similarly, Alternative D in 2015 considered an action to except decisions associated with PHMA if it were demonstrated that the action was in non-habitat and met specific criteria (page 2-90). Finally, Alternative E1 in 2015 included language that "effort has been made to minimize the amount of non-habitat within the SGMAs, but given the topographic, physiographic and land cover features within Utah and the scale and detail of mapping, the inclusion of some non-habitat was

Table 4-2
Management Alignment Alternative Issues Already Analyzed in the 2015 Final EIS and 2016 Draft EIS

Management Alignment Alternative	How Considered in 2015 Final EIS and 2016 Draft EIS
	unavoidable." It went on to note that "no specific management provisions are proposed for non-habitat areas within the SGMAs, except to consider noise and permanent structure stipulations around a lek, and to note that, birds may fly over the non-habitat as they connect to other populations or seasonal habitat areas" (p. 2-90). The 2015 Final EIS analysis included the effects of this language, which is similar to that being considered in the Management Alignment Alternative. The analysis from the 2015 Final EIS explain the impacts from these actions, and are incorporated by reference. No additional analysis is needed.
Adaptive Management	Management changes as a result of meeting an adaptive management hard trigger were considered and analyzed in the 2015 Final EIS. While management to remove these "hard wired" changes from adaptive management were not considered in 2015, the impacts from such were analyzed in the 2015 Final EIS: If the 10-year population trend for an area that has met a hard trigger reflects the natural fluctuations of a self-sustaining population, hard trigger management would be removed and the RMPA actions would be restored. Existing RMPA actions have already been analyzed in the 2015 Final EIS and this RMPA/EIS. Therefore, no additional analysis is necessary. If all the leks in an area that have met a hard trigger are not active for 10 years, indicating no occupied leks, the PHMA designation and all its associated management would be removed since there is no longer a Greater Sage-Grouse population for which management should be prioritized. In this instance, the removal of PHMA would revert management to Alternative A, as considered and analyzed in the 2015 Final EIS. Therefore, no additional analysis is necessary. Because all impacts from the adaptive management actions considered in this process were already considered in one of the alternatives already analyzed, no additional analysis is necessary to describe impacts from the potential "un-triggers."
Prioritization of Mineral Leasing	In 2015, Alternatives A-E (including the State's Plan, Alternative E1) all considered no objective that prioritized leasing and development outside of PHMA and GHMA. Therefore, the change proposed in the Management Alignment Alternative of this plan was considered in 2015 and analysis can be found in Chapter 4 of that EIS. No additional analysis is necessary.
Land Disposal and Exchanges	The 2015 Final EIS Alternative A includes management that "in order to be considered for any form of land tenure adjustment, all lands not specifically identified for disposal must meet criteria included in FLPMA and in each LUP" (page 2-186). It also included analysis that "lands with sensitive species (including Greater Sage-Grouse) would not be disposed of unless there was a net benefit for Greater Sage-Grouse" (4-54). This management is substantially similar to that considered in the Management Alignment Alternative, and the effects would not differ from those already identified in the 2015 Final EIS for Alternative A.

Table 4-2
Management Alignment Alternative Issues Already Analyzed in the 2015 Final EIS and 2016 Draft EIS

Management Alignment Alternative	How Considered in 2015 Final EIS and 2016 Draft EIS
	While the impacts from the proposed changes to land disposal and exchanges are addressed, specific impacts on resources/resource uses, as applicable, will be considered in detail in this chapter.
Managing Habitat to Manage Predation	Allowing the removal of corvid nests was not considered in 2015, although Alternative A was silent on the issue. This chapter analyses the impacts of this action.
Burial of Transmission Lines	Alternative E1 (the State's Plan) did not include requirements for burial of transmission lines. The proposal in the Management Alignment Alternative to not require burial of power lines was considered within the range of the 2015 Final EIS and analysis can be found in the Chapter 4 analysis of that document.

4.6.1 Impacts on Greater Sage-Grouse

The methods and assumptions regarding analysis of impacts on Greater Sage-Grouse are the same as those used in the 2015 Final EIS, Section 4.3.1 (pages 4-6 through 4-10). The resulting analysis describes impacts from the range of alternatives in the 2015 Final EIS, inclusive of Sections 4.3.2 through 4.3.7 (pages 4-10 through 4-135). This establishes a substantial baseline of impacts from the breadth of issues considered in the 2015 Final EIS, including most of the issues addressed in this RMPA/EIS. The assumption, indicators, and analyses are incorporated by reference and will serve as the base of analytical descriptions from which this analysis is drawn.

Administering Disturbance and Density Caps

The Management Alignment Alternative includes cap on disturbance and on density of energy/mining facilities in PHMA, similar to the No-Action Alternative (see **Table E.1**, **Appendix E**). In both alternatives, disturbance at the project and BSU scales must be managed to stay under 3 percent, as well as the density of energy and mining facilities must remain under one facility per 640 acres, on average. These caps would minimize disturbance in PHMA, managing for a landscape with levels of development that research supports is necessary to maintain Greater Sage-Grouse leks.

However, the Management Alignment Alternative builds flexibility into the analysis by allowing exceedances of caps if certain condition are met. For example, if site-specific information (e.g., habitat condition, Greater Sage-Grouse use of the area) combined with project design information (i.e., project siting, minimization measures, and compensatory mitigation) indicate the project will improve the condition of Greater Sage-Grouse habitat, the caps can be exceeded. The ability to exceed the disturbance and density caps could result in loss and degradation of site-specific Greater Sage-Grouse habitat and impacts on local grouse populations. Projects that would likely be precluded under the No-Action Alternative could proceed under the Management Alignment Alternative. However, exceedances to the caps would only be allowed if site-level analysis indicates the project will improve the condition of Greater Sage-Grouse habitat.

There is a risk that allowing this exceedance could result in the loss of a specific type of habitat that mitigation may not address because it does not require compensation for the exact same habitat value.

Consequently, under the Management Alignment Alternative it is possible that while the required habitat improvement will occur, it may not address the loss of a specific habitat type. This may result in a long-term impact on Greater Sage-Grouse in the project area.

In summary, allowing exceedances to the caps may result in local impacts on Greater Sage-Grouse if specific habitat type cannot be replaced through compensatory mitigation. However, the compensatory mitigation may fully replace the value of the impacted area. The determination of whether it would or not replacement would be successful depends on site-specific issues that would be analyzed in project-specific environmental reviews.

The interspersed nature of habitat, non-habitat, and potential habitat in Utah results in instances where localized habitat improvements, as required under the Management Alignment Alternative, could benefit a specific population more than a 3 percent cap under the No-Action Alternative. Greater Sage-Grouse in Utah are limited by habitat availability, and increasing habitat could provide a population-level benefit to Greater Sage-Grouse use of an area.

Modifying Habitat Objectives

Changes in the habitat objectives table found in Objective SSS-3 are based on an evaluation of Greater Sage-Grouse habitat preferences informed by data collected throughout Utah. The proposed changes to the desired conditions in the habitat objectives table are outlined to better reflect vegetation structure and composition found in vegetation communities that support Greater Sage-Grouse habitat in Utah, as well as adjust the indicators and values to reflect a starting point that is based on the best available data based on local habitat conditions. The resulting three zones (Low, Wasatch, and Parker – See Chapter 3, Section 3.3.4 and Map 3-1) provide a starting point for Greater Sage-Grouse habitat management that is more attuned to the varied vegetation communities providing Greater Sage-Grouse habitat throughout Utah. These changes will have beneficial impacts on management and Greater Sage-Grouse habitat because the indicators and values more accurately reflect vegetation characteristics in Utah as informed by site-specific information that has been updated using local science.

Waivers, Exceptions, and Modifications for NSO Stipulations

As noted in **Table 4-2**, multiple alternatives considered exceptions to oil and gas stipulations. The Management Alignment Alternative alters the exception from the No-Action Alternative in two ways: first it applies it to areas with habitat (site-scale documentation), and second, it does not require that the State of Utah and the Fish and Wildlife concur to its use. While exception of the NSO stipulation in PHMA would allow surface development, the BLM is required by regulation to either document that the factors leading to the stipulation have changed (e.g., no Greater Sage-Grouse habitat) or that the proposed operations would not cause unacceptable impacts (43 CFR 3101.1-4). In areas with site-scale habitat, such an exception would only be allowed if it was to prevent damage to higher value Greater Sage-Grouse habitat on adjacent non-public lands. In areas with site-scale non-habitat, the exception could only be approved if the primary disturbance (e.g., well pad, compressor station) did not impair adjacent seasonal habitats from direct and indirect impacts from the project. While allowing the possibility for an exception introduces the potential for an impact not present in the No-Action Alternative, the criteria that must be met prior to approving an exception would either result in the exception not being granted, or in subsequent development having a low potential for impacts. Further, if the exception to the NSO stipulation is granted, and subsequent development would have to apply

other minimization measures contained in MA-SSS-3, providing more assurances that resulting developments would not likely impact Greater Sage-Grouse or their habitats.

The Management Alignment Alternative also adds a modification to the NSO stipulation that could result in some site-specific impacts on Greater Sage-Grouse or their habitat. The modification would allow operators to place infrastructure (e.g., roads, pipelines, and power lines) associated with their primary disturbance (e.g., well pad and compressor station) in PHMA without adhering to the NSO stipulation, but applying the minimization and mitigation measures in MA-SSS-3 (e.g., disturbance cap, tall structures, noise, seasonal, buffers, etc.). The construction of such associated infrastructure would damage habitat and potentially displace birds. The modification was added to the Management Alignment Alternative because in its absence, an operator could still obtain rights-of-way for such infrastructure. To avoid inconsistency in management (i.e., avoiding ROWs but precluding supporting oil and gas infrastructure), the modification was included, but only if the primary disturbance (e.g., well pad, compressor station, etc.) was granted an exception.

The Management Alignment Alternative also included a waiver for the NSO stipulation. However, there would be no impact on Greater Sage-Grouse from the waiver, as it would only be applied if PHMA were removed in the future.

General Habitat Management Areas in Utah

As noted on **Figure 2-1a**, there are several areas of GHMA throughout Utah in the No-Action Alternative. The GHMA in the Morgan and Summit County areas is predominantly on private lands; the GHMA between Vernal and Strawberry Reservoir (noted as South Slope Uintah in the 2015 Final EIS Chapter 3) is tribal and private lands. The areas of GHMA in the Uintah Population Area is separated into three small subpopulations, described in Chapter 3 of the 2015 Final EIS as Deadman's Bench, East Bench and Book Cliffs, and Halfway Hollow. None of the other GHMA in Utah includes any leks, and is generally comprised of poor quality habitat on the periphery of larger PHMA.

Under the Management Alignment Alternative, the GHMA designation would be removed with all its corresponding management actions from the 2015 plan amendments. These management actions, including lek buffers, required design features, fluid mineral leasing prioritization, and habitat objectives, provide a hierarchy of potential conditions to minimize effects while still allowing for development in GHMA. Notably, however, under the No-Action Alternative, where GHMA remain, development would still be allowed following this hierarchy of conditions. Under the Management Alignment Alternative, the removal of GHMA and their associated management actions would likely incentivize development in areas formally identified as GHMA. The long-term effect of incentivizing under the Management Alignment Alternative is not anticipated to be different than the development that would eventually be allowed under the No-Action Alternative, as noted below.

Under the No-Action Alternative development could still occur in GHMA. As analyzed in the 2015 Final EIS, "despite the…[Greater Sage-Grouse] conservation measures, leasing and development in these areas could result in human alteration, direct loss, and fragmentation of seasonal [Greater Sage-Grouse] habitats, which, in most cases, have already been fragmented by mineral development activities. Fragmentation could further limit the amount of usable habitat available for the small and declining population of [Greater Sage-Grouse] that occupy this area [GHMA]" (2015 Final EIS, page 4-119). Although GHMA remain a part of the No-Action Alternative, the potential decline of Greater Sage-

Grouse in GHMA exists. Thus, whether or not GHMA and its associated management is present, the impacts from the two alternatives would be the same in the long-term, though the Management Alignment Alternative could likely accelerate the effect on GHMA.

In addition, the Management Alignment Alternative provides that occupied habitat outside PHMA that is lost to development be replaced by creating or improving habitat inside PHMA. Conversely, under the No-Action Alternative, mitigation is required to demonstrate a net conservation gain to compensate for development in GHMA, whether inside or outside GHMA. Comparing 20-year trends, PHMA adds 79.5 more birds every year on average than what is added in GHMA. Assuming stable trends, it would take approximately 2.5 years for the population growth in PHMA to replace the potential loss of Greater Sage-Grouse populations in GHMA. In short, PHMA provides better habitat and better opportunity for the Greater Sage-Grouse; thus, while it appears that the loss of GHMA protections would have impacts on Greater Sage-Grouse, due to the Management Alignment Alternative's focus on PHMA, and the mitigation requirement to create/improve habitat within PHMA, these factors likely minimize the potential harms from removing the GHMA classification. It is important to note that it is not anticipated that Greater Sage-Grouse populations in GHMA would be eliminated, but this demonstrates that Greater Sage-Grouse populations in Utah would not result in a long-term decline due to the removal of GHMA.

The requirement to mitigate the loss of occupied Greater Sage-Grouse habitat in former GHMA area by creating or improving PHMA could have a collective impact over time. As the amount of development increases in former GHMA, the lack of local mitigation could accelerate the declines in Greater Sage-Grouse populations as available habitat that is not affected by disturbance shrinks.

Of the 366 known occupied leks in Utah, 94 percent of these leks are in PHMA. Only 8 of the 22 leks in GHMA are in areas affected by BLM management, with the other 14 in areas predominantly owned by tribal or private entities. With this alignment, the BLM would prioritize habitat management areas that encompass nearly 96 percent of the actual Greater Sage-Grouse, based on 2017 data.

As described in the analysis for Alternative E in the 2015 Final EIS, not including specific management for GHMA could result in localized Greater Sage-Grouse habitat loss, and continued population decreases. These areas on public lands are naturally fragmented, and various human developments (e.g., roads, transmission lines, and oil and gas development) have further isolated and impacted these habitats and their associated populations. The changes in management in the Management Alignment Alternative would continue, if not accelerate these effects. However, as described above, the conservation value of these areas to the persistence and growth of Greater Sage-Grouse populations in Utah is marginal when compared with the habitat values and growth trends of populations in PHMA.

The overall Greater Sage-Grouse goal to "maintain and/or increase Greater Sage-Grouse abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend in collaboration with other conservation partners" would be met under the Management Alignment Alternative (Goal SSS-1 – 2015 ROD/ARMPA). While some areas outside of PHMA would likely see continued population decreases, the requirement to replace habitat in PHMA as compensation for development in former GHMA will meet the goal of "maintaining and/or increasing Greater Sage-Grouse abundance" because PHMA growth trends are more than 11 times higher than GHMA.

Finally, with the removal of GHMA, two small areas in the Sheeprocks area would be managed as available for cross-country OHV use. Approximately 6,320 acres in the 5 Mile Pass area in GHMA on the northeastern portion of Sheeprocks, and 7,900 acres in the Little Sahara Sand Dunes area in GHMA on the southern portion of the Sheeprocks population would be managed as available for cross-country OHV use. As noted in **Chapter 3**, both these areas are destination-based OHV riding areas, and both were open for more than 25 years prior to the 2015 ROD/ARMPA action to limit use in these areas to existing routes. The acres in both areas are directly adjacent to other areas that are also available to cross-country OHV use, and were originally part of the same open areas prior to 2015. The 2015 Final EIS notes that "habitat loss could occur associated with cross-country OHV use" (2015 Final EIS page 4-52). In addition, a review of GPS tracking data for Greater Sage-Grouse in the Sheeprocks area indicates that none of the collared birds (a sub-sample of the total population) used the areas proposed to be made available to cross-country use again (Chelak and Messmer 2017). Due to the long-term use in both of these areas prior to 2015, these areas have likely already experienced the habitat losses, so this change is not anticipated to result in impacts on Greater Sage-Grouse or its habitat.

Prioritization of Mineral Leasing

The Management Alignment Alternative proposes to remove the fluid mineral leasing prioritization objective that prioritizes leasing outside of PHMA and GHMA. This was considered in Alternatives A, B, C, D, and E in the 2015 Final EIS where no similar objective was included. However, the 2015 Final EIS, where mineral leasing prioritization was part of the Proposed Plan (what is now the No-Action Alternative), focused its analysis on the no surface occupancy allocation decision that resulted from the objective. It determined that prioritizing leasing outside of Greater Sage-Grouse habitat would not preclude leasing in PHMA. At most, the prioritization objective could potentially result in temporarily deferring a parcel in PHMA from leasing to a later sale, but only in instances of large lease sales where staff capacity would be incapable to analyzing all the nominated parcels. Because the mineral leasing prioritization objective provides no certain or durable protection to PHMA, its removal would not increase threats, since the no surface occupancy stipulation is still in effect.

Land Disposal and Exchanges

The No-Action Alternative would retain both PHMA and GHMA unless a net gain to Greater Sage-Grouse could be documented. The Management Alignment Alternative also manages PHMA for retention, but former GHMA would be available for disposal according to the local land use plans. Additionally, prior to a disposal of public lands in PHMA, the environmental review would need to document that the land tenure adjustment would not compromise the persistence of the Greater Sage-Grouse population in the PHMA. This change could result in areas of Greater Sage-Grouse habitat in both PHMA and former GHMA no longer being administered according to the management actions from this amendment. The impact of this change could affect smaller pieces of habitat within a PHMA, but would maintain enough of the seasonal habitats to maintain population persistence. Land disposals and exchanges within PHMA that would compromise the persistence of the PHMA's population would not be authorized. While there could be site-specific impacts, the likelihood for population-level impacts in PHMA would be low due to requirement to not dispose of lands that would threaten the persistence of the population. Former GHMA could be affected to a greater degree, as no limitation on size or impact would exist regarding their potential disposal.

Managing Habitat to Manage Predation

Removing corvid nests during habitat treatments in PHMA, including removing the trees on which they are built and adjacent trees, could reduce predation pressures by reducing corvid nesting opportunities. While breeding corvids will simply seek new nesting opportunities in the next nesting season, reducing existing nests and adjacent nesting opportunities in PHMA could reduce opportunities for corvids to have easy access to Greater Sage-Grouse nesting habitat. While generally applicable statewide, the magnitude of this impact would depend on predation rates at the local Greater Sage-Grouse population level.

Burial of Transmission Lines

The No-Action Alternative requires that new transmission lines be buried where technically feasible. The 2015 Final EIS notes that "burying power lines in Greater Sage-Grouse habitat would avoid Greater Sage-Grouse predator perching or nesting opportunities, Greater Sage-Grouse avoidance of aboveground power lines, and Greater Sage-Grouse collisions with power lines" (2015 Final EIS page 4-32). It goes on to note that burying transmission lines would also result in ground disturbance during construction and maintenance and may result in large, permanent displacement of excavated soil and subsequent issues with reestablishing native vegetation. The Management Alignment Alternative proposes to remove the requirement to bury transmission lines and provides increased flexibility to consider site-specific impacts and minimization options. This change in management could result in both positive and negative impacts on Greater Sage-Grouse, depending on threats in local populations.

Constructing transmission lines above-ground could increase predator perches, which may lead to increased take of Greater Sage-Grouse and their nests. However, impacts of predator perches would be minimized by conforming with right-of-way avoidance allocations, application of tall structure restrictions in PHMA, use of perch deterrents on poles, and micro-siting lines to avoid important Greater Sage-Grouse leks and adjacent seasonal habitats. Not requiring burial could also maintain more habitat than burial because it offers more protection for sensitive habitat areas. Removal of sagebrush and associated vegetation would be avoided with placement of surface lines, which minimizes habitat disturbance and the potential for invasive/noxious weeds. The specific impacts of this change in management would depend on site-specific conditions, but the removal of the requirement would allow interdisciplinary teams and local managers to evaluate site-scale impacts and minimize impacts at the project level, providing the flexibility to make the best decision for the local Greater Sage-Grouse population and their habitat.

4.6.2 Impacts on Air Quality

Impacts on air quality are described in the 2015 Final EIS in Section 4.4 (pages 4-135 to 4-137). Air quality is identified as a resource that would primarily have indirect, beneficial impacts from the implementation of most Greater Sage-Grouse conservation measures, although some adverse impacts from the different plan alternatives were discussed. As protective measures increase for Greater Sage-Grouse, related reductions in development would help maintain air quality. The 2015 Final EIS discussed positive and negative impacts from livestock grazing, travel, mineral extraction, wildland fires, and construction activities. No changes are expected to the air impacts analysis contained in the 2015 Final EIS. However, some discussion related to the potential new ozone non-attainment areas and reverting OHV areas back to open for cross-country use as they relate to air quality is provided.

In 2018 the EPA is going to officially designate Salt Lake and Davis Counties as well as portions of Weber, Tooele, Uintah and Duchesne Counties as non-attainment for ozone. BLM-managed Greater Sage-Grouse areas are included in the Uintah County non-attainment area, while non-attainment areas in other counties do not overlap with BLM-managed Greater Sage-Grouse habitat. Monitoring data found in Table 3.5 and in the 2015 Final EIS (page 3-48) show that ozone measurements have frequently exceeded the current ozone NAAQS value, and changes from attainment to non-attainment will likely not change the air impacts analysis described in 2015.

General Habitat Management Areas in Utah

Two areas in the Sheeprocks Population Area associated with the 5 Mile Pass and Little Sahara Sand Dunes OHV areas would revert to open for cross-country use. Pollution from OHVs includes fugitive dust and NAAQS controlled pollutants. Areas now designated as open to OHV cross-country use are adjacent to existing OHV recreation areas, and no additional air pollution emissions are expected from those that already occur. Additionally, these areas were open to OHV cross-country use before the 2015 Final EIS amendments, and impacts on air would be similar to that time.

4.6.3 Impacts on Soil Resources

General Habitat Management Areas in Utah

Under the Management Alignment Alternative, GHMA would be removed and would revert back to land management objectives as outlined in pre-existing (before 2015) resource management plans. This action would result in two areas (14,220 acres) in GHMA limited to existing routes in the 2015 Final EIS to return to being available to cross-country OHV use. This action may have some adverse impacts on soils (especially sensitive soils) from increased disturbance and compaction. This action may enable the spread of invasive and nonnative plant species, which may also impact soils negatively. The impacts from soil compaction and disturbance are outlined in the 2015 Final EIS in Chapter 4, Section 4.6.

4.6.4 Impacts on Vegetation (Including Noxious Weeds, Riparian Areas, and Wetlands)

Impacts on vegetation resources from anthropogenic activities have been disclosed in detail in the Vegetation section (Chapter 4, Section 4.8) in the 2015 Final EIS; however the Management Alignment Alternative includes some additional impacts on vegetation resources that may occur from the proposed changes.

General Habitat Management Areas in Utah

Removal of approximately 448,600 acres of GHMA and reverting to pre-2015 management could allow projects in these areas to proceed more quickly without Greater Sage-Grouse specific conservation measures and management objectives for vegetation. Proposed projects in GHMA would be allowed by the BLM as long as the project has no indirect impacts on vegetation in PHMA. Mitigation measures for disturbance in GHMA would be implemented by improving habitat inside of PHMA for Greater Sage-Grouse. Vegetation resources may be impacted on various levels by allowing more disturbance and anthropogenic activities in GHMA. More disturbance could lead to increased amounts of invasive and noxious vegetation as well as degraded shrub and herbaceous vegetation communities. Indirect impacts from increases in invasive and noxious vegetation may lead to loss of energy flow, hydrologic function, and soil stability which could lead to further degradation of vegetation communities. As the amount of development increases in former GHMA, the consecutive effects of mitigating disturbances in PHMA could mount and could possibly affect the functionality of some vegetation communities. Site-specific

planning and other management from local resource management plans could reduce negative impacts on vegetation resources in former GHMA with the use of best management practices and other project mitigation design features.

Waivers, Exceptions, and Modifications (WEMs) for NSO Stipulations

The Management Alignment Alternative would allow exceptions to surface occupancy restrictions in mapped PHMA. Areas in PHMA where this would be allowed would lack the principle habitat components necessary (e.g., a combination of sagebrush, grasses, and forbs) for Greater Sage-Grouse. These areas could also be areas that have crossed ecological threshold(s) to non-Sage-Grouse habitat vegetation communities (e.g., monoculture cheatgrass and pinyon/juniper woodlands). Impacts from projects in PHMA non-habitat areas would likely have minimal impacts on vegetation resources, as the vegetation would already be in a non-desirable condition and would likely be unoccupied by Greater Sage-Grouse. Minimization measures would still be applied to projects in PHMA to limit the effects of disturbances (e.g., 3 percent disturbance cap and noise).

Disturbance Caps

The 2015 Final EIS analyzed the impacts from the BLM not permitting discrete anthropogenic activities that cause disturbance beyond the 3 percent cap in PHMA. The Management Alignment Alternative would allow the 3 percent cap to be exceeded at the proposed project analysis scale if a technical team determines the project will improve the condition of Greater Sage-Grouse habitat. This action would allow projects to exceed the disturbance cap, but in so doing would require habitat improvement projects that could change vegetation conditions in the project area to shift away from a landscape more dominated by trees to one more dominated by grasses and shrubs that is conducive to Greater Sage-Grouse habitat. This action would likely shift vegetation communities to earlier seral classes by meeting recovery objectives designed for Greater Sage-Grouse habitat at the project site scale even though the 3 percent cap would be exceeded.

Prioritization of Mineral Leasing

Removing the prioritization objective for PHMA and GHMA would not directly impact vegetation because prioritization doesn't permit or preclude leasing in PHMA. The no surface occupancy stipulations and conservation measures in place for PHMA would protect the continuity of sagebrush communities. However, the prioritization objective could potentially result in temporarily deferring a parcel in PHMA from leasing to a later sale, but only in instances of large lease sales where staff capacity would be incapable to analyzing all the nominated parcels. In an area with poor vegetation conditions or high levels of disturbance, such a delay could provide time for vegetation conditions to improve before new developments are implemented.

4.6.5 Impacts on Other Special Status Species

Administering Disturbance and Density Caps

Allowing exceedances to the disturbance and density caps in PHMA could affect special status species by a reduced level of protection of habitat from disturbance. These disturbance impacts may increase by allowing exceptions to the disturbance cap, especially within areas of non-sagebrush, therefore impacting habitat for special status species that use these non-sagebrush habitat types. However, exceptions to the disturbance and density cap may also benefit some species that overlap with Greater Sage-Grouse due

to habitat projects that could improve habitat conditions through vegetation treatments, minimization, and/or compensation.

Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA

Allowing placement of developments in non-habitat portions of PHMA may increase impacts on certain special status species whose habitat requirements do not overlap with sagebrush areas. Adjacent non-sagebrush habitats could see an increase in development and disturbance when trying to avoid and minimize disturbance to sagebrush landscapes. Species that use sagebrush systems would see no change to impacts compared with the No-Action Alternative because no exception would be granted, as sagebrush within PHMA is habitat.

Prioritization of Mineral Leasing

Removing the prioritization objective for PHMA and GHMA would not directly impact special status species because prioritization doesn't permit or preclude leasing in PHMA. The no surface occupancy stipulations and conservation measures in place for PHMA would protect sagebrush habitats, which could also maintain special status species using these habitat types. However, the prioritization objective could potentially result in temporarily deferring a parcel in PHMA from leasing to a later sale, but only in instances of large lease sales where staff capacity would be incapable to analyzing all the nominated parcels. In an area with poor habitat conditions or high levels of disturbance, such a delay could provide time for habitat improvement before new developments are implemented.

Managing Habitat to Manage Predation

The Management Alignment Alternative provides opportunity to remove trees that have corvid nests that could impact PHMA nesting habitat. Special status wildlife that may experience predation and harassment by corvids would benefit from removal of trees with corvid nests that overlap with PHMA nesting habitat. Ravens have been observed in association with Utah prairie dog colonies. Young prairie dogs are likely an opportunistic food source for ravens and crows as they emerge from the burrows. Young prairie dogs are likely easier to carry away and also do not run as fast as adults or respond to alarm calls as quickly (Hoogland et al. 2006).

Efforts by other agencies to minimize impacts from predators on Greater Sage-Grouse would also likely benefit other special status animals, such as Utah prairie dog and black-footed ferret, that overlap Greater Sage-Grouse habitat. The 2012 Revised Utah Prairie Dog Recovery Plan states that normal levels of predation are not considered a threat for healthy Utah prairie dogs and that healthy populations can likely sustain normal predator pressures without adverse impacts on population structures. Predation is more likely to have adverse impacts on Utah prairie dogs in unnaturally fragmented colonies or at new translocation sites (US Fish and Wildlife Service 2012).

4.6.6 Impacts on Fish and Wildlife

Wildlife habitat conditions within the decision area are directly linked to vegetation conditions, water quality and quantity, and progression toward land health standards as described in Section 4.10.2 of the 2015 EIS (BLM 2015, page 4-184).

General Habitat Management Areas in Utah

Removal of GHMA acres would result in management returning to that described under Alternative A in the 2015 Final EIS. Removal of the GHMA and associated management may reduce some protection

for big game habitat, including crucial winter and fawning/calving habitat that occur within mapped GHMA. Impacts on big game are considered negligible because big game use a variety of habitat types beyond sagebrush. Additionally, the GHMA is not the only management for these areas, but is merely complimentary to management of habitat under applicable RMPs and according to BLM Rangeland Health Standards. Removing the GHMA minimization measures that, as noted above would not preclude development, would not likely result in additional impacts that are not already addressed by management of crucial habitats in existing land use plans.

The offsite mitigation in PHMA to replace impacted habitat in occupied Greater Sage-Grouse habitat outside of PHMA may not always benefit other wildlife species impacted at the disturbed site. While it could lead to a local improvement for species in the area of treatment, especially those that rely on sagebrush landscapes, it could also result in an unmitigated loss in the quantity and quality of habitat at the location of the impact. As the amount of development increases in the Greater Sage-Grouse habitat outside PHMA, the impact from disturbances mitigated in PHMA would mount and could affect the use patterns of wildlife in those areas.

Administering Disturbance and Density Caps

Allowing exceedances to the disturbance and density caps in PHMA could affect wildlife by a reduced level of protection for habitat from disturbance. These disturbance impacts may increase by allowing exceptions to the disturbance cap, especially within areas of non-sagebrush, therefore impacting wildlife species that use these other habitat types (e.g., pinyon-juniper woodlands and pinyon jays). However, exceptions to the disturbance and density cap may also benefit some wildlife species that overlap with Greater Sage-Grouse by improving habitat conditions through vegetation treatments, minimization, and/or compensation.

Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA

Allowing placement of developments in non-habitat portions of PHMA may increase impacts on certain wildlife and migratory birds whose habitat requirements do not overlap with sagebrush areas. Adjacent non-sagebrush habitats could see an increase in development and disturbance when trying to avoid and minimize disturbance to sagebrush landscapes.

Managing Habitat to Manage Predation

The removal of corvid nest structures, including their trees, in PHMA habitat treatments may impact migratory birds by directly removing nesting structures and cover. Although this may negatively impact tree nesting migratory birds, there could be a benefit to ground and shrub nesting migratory birds due to reduced predation potential from corvids and raptors. These impacts, however, are site specific and would be analyzed in detail at the project scale.

Prioritization of Mineral Leasing

Removing the prioritization objective for PHMA and GHMA would not directly impact wildlife because prioritization doesn't permit or preclude leasing in PHMA. The no surface occupancy stipulations and conservation measures in place for PHMA would protect sagebrush habitats, which could also benefit wildlife species using these habitat types. However, the prioritization could possibly delay when a given parcel is offered for lease or subsequently developed. In an area with poor habitat conditions or high levels of disturbance, such a delay could provide time for vegetation conditions to improve before new developments are implemented.

Burial of Transmission Lines

The Management Alignment Alternative proposes to remove the requirement to bury transmission lines (except when not technically feasible) and allow increased flexibility to consider site-specific impacts and minimization options. This action could lead to a minor negative effect on migratory birds by increasing predator perches from unburied lines that may lead to increased take of migratory birds and their nests by raptors and corvids. However, impacts of predator perches could be minimized on a site-scale by use of perch deterrents on poles. There could be beneficial impacts on big game and migratory bird habitat by not burying transmission lines because it offers more protection for sensitive habitat areas. Removal of sagebrush and associated vegetation can be avoided with placement of surface lines, which minimizes habitat disturbance and potential for weeds.

4.6.7 Impacts on Cultural Resources

Modifying General Habitat Management Areas

The Management Alignment Alternative would remove GHMA and its management. In the 2015 amendments, OHV area designations in GHMA were changed from cross-country use for OHVs to "limited" to existing routes. In this Management Alignment Alternative, two areas (14,220 acres) outside of PHMA at 5 Mile Pass and Little Sahara Sand Dunes areas would revert back to being available to cross-country use for OHVs. All other GHMA that switched from available to cross-country use to being limited to existing routes would remain as limited. The previous analysis in the 2015 Final EIS is clear that restrictions on surface and vehicle use would protect cultural resources from impacts due to surface disturbance, erosion, effects on setting and access leading to vandalism, inadvertent damage, and unauthorized collection of cultural resources. However, impacts from "returning" to an open OHV use area may cause impacts on cultural resources as described in Chapter 4 in the 2015 Final EIS (see Section 4.12, page 4-199 to 4-202).

4.6.8 Impacts on Lands and Realty

Administering Disturbance and Density Caps

The Management Alignment Alternative, specifically changes in MA SSS-3B that allow site-specific Greater Sage-Grouse habitat analysis and population information and project design elements to be considered on a project specific basis, could decrease impacts on lands and realty. Allowing exceedances to the disturbance and density caps if minimization or compensatory mitigation improve Greater Sage-Grouse habitat would allow for more flexibility to allow infrastructure projects. Rather than lands and realty projects being precluded entirely if the cap is met, there is an option to exceed the cap with projects that improve Greater Sage-Grouse habitat. This would provide more opportunities for lands and realty projects to move forward within PHMA.

Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA

Allowing exceptions to avoidance and minimization measures in PHMA if the area is non-habitat and indirect impacts wouldn't occur could decrease impacts on lands and realty. Allowing development in areas of non-habitat inside the PHMA could allow for more flexibility to allow consideration of projects if they meet the described criteria. Rather than lands and realty projects being precluded due to minimization measures, projects could seek locations within PHMA that would avoid habitat, thereby enabling development if documentation of no indirect impacts could be completed. This would provide more opportunities for lands and realty projects to move forward within PHMA.

Modifying General Habitat Management Areas

Removing GHMA would also lessen impacts on lands and realty as the area requiring Greater Sage-Grouse plan compliance for infrastructure projects will be reduced accordingly. This may allow some projects to move forward with fewer permitting restrictions as compared with the No-Action Alternative, however the change in impacts would likely be minor since the area that will be relieved of permitting restrictions is minimal.

Land Disposal and Exchanges

The changes in criteria for disposal and exchange of federal land would allow more lands to be considered for disposal without net conservation gain or requirements not to impact any Greater Sage-Grouse or its habitat. This would result in greater management flexibility to consider disposal and exchange of lands that may already have limited manageability due to being isolated tracts with limited access or control. The increased flexibility may also benefit other resources as additional lands with limited benefit to Greater Sage-Grouse could now be exchanged for lands that may have a higher benefit to other resources. However, the overall change in impacts would likely be minimal since the amount of lands affected by the change in criteria is minor.

4.6.9 Impacts on Renewable Energy

Administering Disturbance and Density Caps

The Management Alignment Alternative, specifically changes in MA SSS-3B that allow site-specific Greater Sage-Grouse habitat analysis and population information and project design elements to be considered on a project-specific basis, could potentially lessen impacts on renewable energy as it would allow for more flexibility to allow infrastructure projects that exceed the disturbance cap if they meet the described criteria. This would have little impact on renewable energy development because PHMA would still be closed to commercial wind and solar development.

Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA

Allowing exceptions to avoidance and minimization measures in PHMA if the area is non-habitat and indirect impacts wouldn't occur could decrease impacts on renewable energy projects. Allowing development in areas of non-habitat inside the PHMA would allow for more flexibility to allow consideration of projects if they meet the described criteria. Rather than renewable energy projects being precluded due to closures, projects could seek locations within PHMA that would avoid habitat and indirect impacts, thereby enabling development if documentation of no indirect impacts could be completed. The likelihood that commercial development could find an area large enough in PHMA to avoid all habitat as well as indirect impacts would be low.

Modifying General Habitat Management Areas

Removing GHMA would also likely lessen impacts on renewable energy as the area requiring Greater Sage-Grouse plan compliance for infrastructure projects will be reduced accordingly. This may allow some projects to move forward with fewer permitting restrictions as compared with the No-Action Alternative; however, the change in impacts would likely be minor since the area of high potential renewable energy resources that will be relieved of permitting restrictions is minimal.

4.6.10 Impacts on Fluid Minerals

The BLM Utah reviewed the Reasonable Foreseeable Development scenario (RFD), Appendix R of the 2015 Final EIS, and addressed changes in potential oil and gas exploration and development. The assumptions used in this section to adequately project future development take into account both direct and indirect impacts of removing minimization measures that may limit development desirability of GHMA. The direct factors include increasing exceptions for no surface occupancy stipulations on new leases for oil and gas development, while the indirect included the removal of minimization measures that were applied as lease notices, such as disturbance caps, buffers, required design features, and net conservation gain mitigation requirements in both PHMA and GHMA. This section will briefly cover previous assumptions and methods used for projecting future oil and gas activity in Greater Sage-Grouse occupied habitat in the 13 population areas, and how new modifications will alter these previous projections.

All baseline data from the RFD scenarios by population areas in the RFD are assumed to remain the same. Baseline scenarios were based on criteria including past and present oil and gas exploration and development activity within and near Greater Sage-Grouse occupied habitat, existing oil and gas leases, expressions of interest submitted by industry, exploration and development trends, locations of seismic surveys, existing infrastructure, and commodity prices. Of the 13 population areas, 8 were projected to have minimal or no future oil and gas development. Minimal – meaning equivalent or less than four projected wells by 2030. These population areas included Ibapah, Box Elder, Lucerne, Hamlin Valley, Bald Hills, Panguitch, Parker Mountain, and Sheeprocks. Of the remaining 5 population areas, 3 (Rich, Emery, and Strawberry) were projected to have moderate development, and only 2 (Carbon and Uintah) were anticipated to have significant development on federal minerals. The baseline for these population areas (2015 Final EIS Appendix R: Baseline Reasonably Foreseeable Development Scenario by Population Area) has been kept the same in our assumptions for the following reasons:

1) Less than 2 years have passed since the RFD, meaning minimal changes would factor into the historical data;

2) Only 3 (Carbon, Uintah, and Rich) of the population areas would have any, if at all, oil and gas development that would significantly change projections;

3) This review is meant to be a supplement to the previous RFD and not a complete revision, still only making projections to 2030.

The 2015 Final EIS RFD reviewed the development of four distinct Alternatives (B, C, D, and E) and a Proposed Plan, each with different stipulations on oil and gas development. These stipulations took into account PHMA and GHMA and the requirements applicable to these areas, such as no surface occupancy (NSO), controlled surface use (CSU), and timing limitations (TL). The current changes being considered in this RMPA/EIS include removing all minimization measures and compensatory mitigation requirements applicable to GHMA as identified in the 2015 Proposed Plan. In the 2015 RMP, PHMA and GHMA management was anticipated to deter future oil and gas development for the following reasons:

1) Minimization measures such as required design features (RDF), application of lek buffers that encouraged development beyond 3.1 miles (both in PHMA and GHMA), noise and structure restrictions (in PHMA), surface disturbance caps (in PHMA), and density and seasonal

restrictions (in PHMA) that were expected to discourage future development due to implementation cost. However, in the 2015 Final EIS RFD it is assumed that any cost of the RDFs for wells outside of the PHMA were already included in the estimated drilling and completion. Therefore, removing these measures from application in GHMA would have no change on the projected costs for oil and gas development in the RMP.

2) PHMA and GHMA are categorized as either closed or open with stipulations. In the 2015 Proposed Plan there were approximately 30,000 acres in GHMA that are closed to fluid mineral leasing to reasons other than Greater Sage-Grouse. As such, all closed GHMA were also closed under the 2015 Alternative A; therefore, the closed lands will still not be open for oil and gas leasing.

3) Areas that were open with major stipulations (no surface occupancy) in GHMA were required to have buffer zones from leks. Areas within the vicinity of leks either had major (no surface occupancy), moderate (controlled surface use or timing limitation), or standard stipulations. These areas were minimal and were still open to oil and gas leasing under certain circumstances. The factor that affected future development in these areas was the cost associated with design features. These costs have already been addressed in point 1 of this section. PHMA will still be closed off or open with major stipulations.

The 8 population areas with minimal or no future development potential will not be affected by the changes in GHMA because their historical development and production has been so low that no additional leases will cause significant development or impact. Furthermore, most restricted areas within these population areas are PHMA, rather than GHMA. Emery and Rich population areas, which had moderate development potential, contain PHMA and minimal GHMA with standard stipulations, and will therefore have the same projected development potential. The Strawberry, Carbon, and Uintah population areas contain lands closed, open with major stipulations, open with moderate stipulations, and open with standard stipulations. However, Strawberry and Carbon areas contain much lower amounts of these lands than Uintah. The effects of development that could be factored into these areas would be minimal due to factors addressed in the previous paragraph. Although the Uintah population area will no longer have GHMA, most of this area was open with moderate to standard stipulations. Since this land was mostly open to leasing already (even with GHMA), it would only be the cost of minimization measures and net conservation gain requirements that may deter development operations. However, as previously stated, it was assumed that any cost of the RDFs for wells outside of the PHMA were already included in the estimated drilling and completion costs.

The assumption taken in this section for all population areas in the Management Alignment Alternative is that minimal or no development impact through the opening of GHMA is expected. This assumption took into account both direct and indirect impacts of removing minimization measures that may limit development desirability of GHMA. It was concluded that minimal development change would occur for the following reasons:

1) Most of the restricted area was PHMA, and is still applicable in the current assumptions;

2) Most GHMA was still open for leasing with moderate to standard stipulations;

3) All costs that could have been applicable to stipulations were not factored into GHMA in the original RFD;

4) The 30,000 acres that were previously closed to new leasing within GHMA will still be closed to leasing.

Although there would be minimal development change throughout all of the population areas, removing GHMA and its minimization measures, as well as adding waivers, exceptions, and modifications to the NSO stipulation in PHMA, would possibly allow operators access to more acreage within Greater Sage-Grouse population areas and reduce administrative impediments to development. The addition of waivers, exceptions, and modifications to the NSO and the elimination of multiple requirements in GHMA would not allow wells to be drilled in areas that were precluded from in the 2015 ROD/ARMPA. The only change may be that operators could find a location within PHMA but not within Greater Sage-Grouse habitat (that meets the exception, modification or waiver criteria) to drill a well that is closer to target and would not have to horizontally or laterally drill to reach their target. This would save time and resources for the operator and decrease well pad sizes, in most cases, which is better for other resources.

The allowance of an exception to the density and disturbance caps would be assessed on a site/project-specific basis. The need for the exception must benefit the Greater Sage-Grouse population, therefore the effect of this action would be based on site-specific details and project proposals.

Given the above, impacts on oil and gas from the Management Alignment Alternative on the number of oil and gas well pads anticipated would be the same the 2015 Final EIS Proposed Plan. The Oil and Gas Reasonably Foreseeable Development Scenario for Greater Sage-Grouse Occupied Habitat in Utah Sub-Region (Appendix R of the 2015 Final EIS) is incorporated by reference. Specifically, Table R.1 (Predicted Number of Wells Drilled by Alternative in Each Population Area and County), R.2 (Predicted Number of Producing Wells by Alternative in Each Population Area and County), and R.7 (Estimated Surface Disturbance: Proposed Plan) describe anticipated levels and development and the related estimated amount of disturbance from the Management Alignment Alternative.

4.6.11 Impacts on Nonenergy Leasable Minerals, Coal, Locatable Minerals, Mineral Materials, and Oil Shale and Tar Sands

Administering Disturbance and Density Caps

Allowing an exceedance to the disturbance and density caps based on site-specific habitat condition, population information, and project design elements could allow mineral developments to proceed in areas that would have been precluded by the No-Action Alternative. The ability to empirically examine proposed developments that could exceed the three percent disturbance cap or density cap provides the ability to potentially avoid precluding leasing/permitting, development, or consideration of associated infrastructure.

However, authorizing the exceedances to the disturbance and density caps would only be allowed if minimization or compensatory mitigation improves Greater Sage-Grouse habitat. As such, while there is more flexibility and projects may no longer be precluded by the caps, potential developments will still require added Greater Sage-Grouse evaluations and improvement projects. This could include additional costs to implement mitigating measures, which could make a proposed project uneconomical.

Under the Management Alignment Alternative, to the extent consistent with the rights of a mining claimant under existing laws and regulations, the BLM would work with locatable minerals claimants to apply the disturbance cap and minerals/energy density cap in PHMA. However, under the Mining Law of 1872, as amended, the BLM does not have authority to require such mitigation measures. As such, impacts on existing locatable mineral operations from these additional mitigation measures would be minimal.

Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA

Allowing exceptions to avoidance and minimization measures in PHMA if the area is non-habitat and indirect impacts would not occur could allow consideration of leasing/permitting and development for mineral operations. Allowing development in areas of non-habitat inside the PHMA could allow for more flexibility to allow consideration of projects if they meet the described criteria. The potential for this exception to allow larger mineral developments would be low given the small likelihood that a large development would fit entirely within an area of non-habitat in PHMA and still not have any indirect impacts would be low. For large projects in this situation, the potential effect of this added flexibility is likely low.

Modifying General Habitat Management Areas

Removing GHMA would decrease impediments to mineral development, as the area requiring Greater Sage-Grouse plan compliance for infrastructure projects would be reduced accordingly. This may allow some projects to move forward with fewer restrictions as compared with the No-Action Alternative.

Land Disposal and Exchanges

The changes in criteria for disposal and exchange of federal land would allow more lands to be considered for disposal without net conservation gain or requirements not to impact any Greater Sage-Grouse or its habitat. This could improve management flexibility to consider disposal and exchange of lands that may already have limited manageability due to being isolated tracts with limited access or control. The increased flexibility may also benefit other resources as additional lands with limited benefit to Greater Sage-Grouse could now be exchanged for lands that may have a higher benefit to other resources. However, the overall change in impacts would likely be minimal since the amount of lands affected by the change in criteria is minor.

4.6.12 Impacts on Social and Economic Conditions

Implementation of the Management Alignment Alternative would be expected to result in the following socioeconomic impacts, which are secondary to changes in resource and management conditions.

Administering Disturbance and Density Caps

Allowing an exceedance of the 3 percent disturbance and density caps could increase opportunities for development within PHMA if an area was close to meeting one of the caps. Should this occur, it is anticipated that there could be increased economic activity and, possibly, positive economic impacts at the local, regional, state, and/or national level. Exclusion of non-occupied PHMA from this classification could potentially result in increased development activities in the future and, in turn could result in positive economic impacts. This provision could also potentially open up additional opportunities for siting of energy and/or mining facilities, resulting in positive changes in economic indicators.

General Habitat Management Areas in Utah

Changes in Greater Sage-Grouse management outside of PHMA have the potential to reduce costs of exploration and development of multiple types of energy, mineral, and other land use resources. These include solid, fluid, locatable, saleable, and leasable (both energy- and nonenergy-related) minerals. To the extent that such costs are reduced, entities operating within the affected area could see an increase in competitiveness and profitability over time, although this result would be expected to be marginal.

No social or economic impact is anticipated as a secondary impact resulting from changes in opening areas to cross-country OHV use. The areas proposed to be made available for cross-country use are components of larger areas where such use is already available. In addition, the areas proposed to be made available were available for over 20 years prior to the 2015 change to limited. As such, no change in overall OHV-related and other recreation-related spending patterns or social and economic activity are expected to occur by making the areas available to cross-country use again.

Land Disposal and Exchanges

Increased potential for disposal and/or exchange of BLM-managed federal lands in PHMA and Greater Sage-Grouse habitat outside of PHMA could possibly result in expanded economic opportunities in the affected location. The specific economic impact in each case would depend on the type of development that would occur as a result of the change in landownership. Possible land uses include use for county and municipal physical facilities, commercial or residential development, and/or recreational use.

4.6.13 Impacts on Other Resources

After reviewing the proposed changes in the Management Alignment Alternative, interdisciplinary team members identified which actions could affect each resource or resource use. After identifying potential impacts, team members reviewed the 2015 Final EIS to determine if the potentially significant impacts from the proposed changes were already addressed in the existing analysis. As described above, impacts associated with most of the changes were already analyzed. For the following resources and uses, there were no new significant impacts from the actions considered in **Chapter 2** beyond those already addressed in the 2015 Final EIS:

- Water Resources
- Wild Horses and Burros
- Visual Resources
- Wildland Fire Management
- Lands with Wilderness Characteristics
- Livestock Grazing/Range Management
- Recreation
- Comprehensive Travel and Transportation Management
- Tribal Interests

Management changes associated with the following issues could result in development being moved around on the landscape (into areas of non-Greater Sage-Grouse habitat) or expedited in its implementation (not increased, but implemented more quickly):

- General Habitat Management Areas in Utah
- Considering Exceptions to Greater Sage-Grouse Restrictions in PHMA
- Waivers, Exceptions, and Modifications for NSO Stipulations
- Sagebrush Focal Areas Designations/Withdrawal Recommendations
- Administering the Disturbance and Density Caps
- Burial of Transmission Lines

Changes in management resulting from consideration of the above list of issues could result in a change in the potential for development to occur in PHMA or former GHMA. This could include a change in where the development could occur (e.g., in non-habitat portions of PHMA, in former GHMA area, or anywhere in PHMA due to exceedances in the disturbance or density cap). The change could also include the rate at which it occurs (development in GHMA occurring more quickly under the Management Alignment Alternative compared with the No-Action Alternative due to removal of some minimization measures and compensation requirements). In all of these instances, the impact analysis in the 2015 Final EIS addressed the effects of similar actions on the list of resources above. Those effects are substantially similar to the impacts from the changes considered in the Management Alignment Alternative.

At the state-wide context, the fact that impacts could occur is what the analyses addresses, not the more site-specific context of when or where development may occur. The conclusion of the interdisciplinary team member's evaluation of the recommended changes was that the existing 2015 Final EIS accurately described the anticipated impacts for the resources listed above. For these resources, there would be no additional impacts from the proposed changes in the Management Alignment Alternative than what is described in the corresponding section of the 2015 Final EIS. For these resources, analysis is incorporated by reference as there will be no new impacts that haven't already been addressed in the 2015 Final EIS.

4.7 CUMULATIVE IMPACTS

This section presents the anticipated cumulative impacts on the environment from implementing the alternatives presented in **Chapter 2**. A cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The cumulative impacts resulting from the implementation of the RMP decisions in this RMPA/EIS may be influenced by other actions, as well as activities and conditions on other public and private lands, including those beyond the planning area boundary. These include the concurrent USFS Planning effort to amend land management plans for National Forests in Idaho, Montana, Nevada, Utah, Colorado, and Wyoming, which were previously amended in September 2015 to incorporate conservation measures to support the continued existence of the Greater Sage-Grouse. As a result, the sum of the effects of these incremental impacts involves determinations that often are complex, limited by the availability of information, and, to some degree, subjective. The cumulative impacts analysis area is the planning area.

This RMPA/EIS incorporates by reference the analysis in the 2015 Final EIS and applicable portions of the 2016 SFA Withdrawal Draft EIS, which comprehensively analyzed the cumulative impacts associated with

these planning decisions under consideration in those processes. The Management Alignment Alternative's effects are substantially within the range of effects analyzed by the 2015 Final EIS and the 2016 SFA Withdrawal Draft EIS. Both of these cumulative effects analyses are quite recent, and conditions in Utah have not changed significantly according to the findings identified in the USGS scientific review (and discussed in **Chapter 3**). In addition, the projections that were made regarding reasonably foreseeable future actions remain applicable with the addition of several new projected projects included in the analysis below. Since the nature and context of the cumulative effects scenario has not appreciably changed since 2015 and 2016, and the analyses covered the entire range of the Greater Sage-Grouse, the cumulative effects analysis in these previous planning efforts provide a foundation for the BLM to identify any additional cumulative impacts.

Unless otherwise addressed in this chapter, the cumulative effects of the alternatives analyzed in this RMPA/EIS are covered by the 2015 Final EIS and applicable portions of the 2016 SFA Withdrawal Draft EIS. This includes the incremental impacts across the range of BLM and USFS lands being amended in concurrent plan amendment efforts. See the 2015 Final EIS and 2016 SFA Withdrawal Draft EIS for additional information. See **Table 4-3** for the location of cumulative analysis incorporated by reference.

Table 4-3
Cumulative Effects
Analysis Incorporated by Reference

Resource Topic	Location of Cumulative Effects Analysis
Greater Sage-Grouse	Chapter 5, Section 5.4 of the 2015 Final EIS and Chapter 4, Section 4.5.9 of the 2016 SFA Withdrawal Draft EIS. Additional information regarding Greater Sage-Grouse is included in Chapter 4, Section 4.5 of this RMPA/EIS.
Air Quality	Chapter 5, Section 5.5 of the 2015 Final EIS. Additional information regarding air quality is included in Chapter 4, Section 4.6 of this RMPA/EIS.
Soil Resources	Chapter 5, Section 5.7 of the 2015 Final EIS. Additional information regarding soil resources are included in Chapter 4, Section 4.7 of this RMPA/EIS.
Water Resources	Chapter 5, Section 5.8 of the 2015 Final EIS.
Vegetation (including Noxious Weeds; Riparian and Wetlands)	Chapter 5, Section 5.9 of the 2015 Final EIS. Additional information regarding vegetation is included in Chapter 4, Section 4.8 of this RMPA/EIS.
Other Special Status Species	Chapter 5, Section 5.10 of the 2015 Final EIS. Additional information regarding other special status species are included in Chapter 4, Section 4.9 of this RMPA/EIS.
Fish and Wildlife	Chapter 5, Section 5.11 of the 2015 Final EIS. Additional information regarding fish and wildlife is included in Chapter 4, Section 4.10 of this RMPA/EIS.
Wild Horses and Burros	Chapter 5, Section 5.12 of the 2015 Final EIS.
Cultural Resources	Chapter 5, Section 5.13 of the 2015 Final EIS. Additional information regarding cultural resources is included in Chapter 4, Section 4.11 of this RMPA/EIS.
Visual Resources	Chapter 5, Section 5.14 of the 2015 Final EIS.
Wildland Fire Management	Chapter 5, Section 5.15 of the 2015 Final EIS.
Wilderness Characteristics	Chapter 5, Section 5.16 of the 2015 Final EIS.
Livestock Grazing/Range Management	Chapter 5, Section 5.17 of the 2015 Final EIS.
Recreation	Chapter 5, Section 5.18 of the 2015 Final EIS.

Table 4-3
Cumulative Effects
Analysis Incorporated by Reference

Resource Topic	Location of Cumulative Effects Analysis
Comprehensive Travel and Transportation Management	Chapter 5, Section 5.19 of the 2015 Final EIS.
Lands and Realty	Chapter 5, Section 5.20 of the 2015 Final EIS. Additional information regarding lands and realty is included in Chapter 4, Section 4.12 of this RMPA/EIS.
Renewable Energy	Chapter 5, Section 5.21 of the 2015 Final EIS. Additional information regarding renewable energy is included in Chapter 4, Section 4.13 of this RMPA/EIS.
Leasable Minerals (Oil and Gas, Non-energy Leasable Minerals, Coal, and Oil Shale and Tar Sands)	Chapter 5, Sections 5.22.1-3 & 5.22.6 of the 2015 Final EIS. Additional information regarding leasable minerals is included in Chapter 4, Section 4.14.1-2 of this RMPA/EIS.
Locatable Minerals	Chapter 5, Section 5.22.4 of the 2015 Final EIS and Chapter 4, Section 4.2.9 of the 2016 SFA Withdrawal Draft EIS. Additional information regarding locatable mineral is included in Chapter 4, Section 4.14.2 of this RMPA/EIS.
Mineral Materials	Chapter 5, Section 5.22.5 of the 2015 Final EIS. Additional information regarding mineral materials is included in Chapter 4, Section 4.14.2 of this RMPA/EIS.
Social and Economic Conditions	Chapter 5, Section 5.24 of the 2015 Final EIS and Chapter 4, Section 4.3.13 of the 2016 SFA Withdrawal Draft EIS. Additional information regarding social and economic conditions is included in Chapter 4, Section 4.15 of this RMPA/EIS.
Tribal Interests	Chapter 5, Section 5.25 of the 2015 Final EIS.

The increased flexibility in this draft amendment would allow for responsible development of other resources in Greater Sage-Grouse habitat and may reduce costs to proponents, but is not expected to result in a large increase in development proposals on public land. Similarly, the increased protections from the 2015 ROD/ARMPA have not resulted in a large decrease in oil and gas leases or right-of-way applications or an increase in rejected applications; therefore, the changes proposed under the action alternative are not expected to result in any change to the rate of development in Utah or its economy.

Some 350 species of plants and wildlife rely on sagebrush steppe ecosystems and coexist with Greater Sage-Grouse and may be similarly affected by development or disturbance; however, nothing in the considered alternatives would lessen the BLM's authority nor responsibility to provide for the needs of special status species as described in BLM land use plans, policies, and laws, including Manual 6840; the Endangered Species Act; and FLPMA. Increased flexibility for other uses within Greater Sage-Grouse habitat does not necessarily increase potential impacts on other wildlife or plant species. Site-specific NEPA analysis including an evaluation of impacts on special status species is required for on-the-ground projects within the planning area.

Table 4-4 represents the past, present, and reasonably foreseeable actions across the entire range for Greater Sage-Grouse, which are separated by state. When assessing the cumulative impact of the RMPA/EIS on Greater Sage-Grouse and its habitat, there are multiple geographic scales that the BLM has considered, including the appropriate WAFWA management zone. WAFWA Management Zones have biological significance to Greater Sage-Grouse. Established and delineated in 2004 in the *Conservation*

Assessment of Greater Sage-Grouse and Sagebrush Habitats (Connelly et al. 2004), the zones are based on floristic provinces that reflect ecological and biological issues and similarities, not political boundaries.

At the regional scale, WAFWA Greater Sage-Grouse management zones and responsible BLM offices include I (Great Plains: BLM Montana and Wyoming), II (Wyoming Basins: BLM Wyoming, Colorado, and Utah), III (Southern Great Basin: BLM Nevada, Northeastern California, and Utah), IV (Snake River Plain: BLM Idaho, Oregon, Nevada, Colorado, Utah, and Montana), V (Northern Great Basin: BLM Oregon, Northeastern California, and Nevada), VI (Columbia Basin: BLM Oregon), and VII (Colorado Plateau: BLM Northwest Colorado and Utah). These zones are an important resource for Greater Sage-Grouse management; and at a regional scale, the following projects are past, present, and reasonably foreseeable that cumulatively effect one or more of the WAWFA management zones. For Utah, those actions in WAFWA Zones II, III, IV, and VII, which overlap Wyoming, Colorado, Nevada, northeastern California, Idaho, and Oregon, would have the greatest potential to contribute to cumulative effects. Note that not all of the projects listed for Wyoming, Colorado, Nevada, northeastern California, Idaho, and Oregon are in WAFWA Zones II, III, IV, and VII, and so may not contribute to cumulative effects.

Further, the entire sum of the past, present, and reasonably foreseeable actions listed below represent cumulative effects across the range of Greater Sage-Grouse habitat and management areas. These effects are important to consider for future management of the species as a whole, and are not solely being analyzed at the local or state level. This is why all ongoing BLM RMPAs/EISs refer to every past, present, and reasonably foreseeable actions across all states undergoing a plan amendment.

Wildland fire and invasive species remain the greatest threats to Greater Sage-Grouse in the Great Basin. Between 2008 and 2017, wildfires burned an average of approximately 900,000 acres per year in Greater Sage-Grouse habitat management areas range-wide[1]; this is within the range of projected wildland fire analyzed in the 2015 Final EIS. The BLM has committed resources to habitat restoration and has treated 1.4 million acres of Greater Sage-Grouse habitat range-wide over the past 5 years.

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Great Basin		
Habitat Restoration Programmatic EIS	Great Basin-wide programmatic habitat restoration project	Programmatic document effects will be realized when the field implements projects. This action will provide opportunities to improve and enhance habitat through vegetation treatments.
Fuel Breaks Programmatic EIS	Great Basin-wide programmatic habitat fuel break project	Programmatic document effects will be realized when the field implements projects. This action will help to reduce the loss of habitat due to catastrophic fires.

[1]Removing 2012 and 2017, which were above-average wildland fire years, the 8-year average is approximately 500,000 acres burned per year.

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Northwest Colorado		
Integrated program of work	Habitat restoration and improvement projects	Potential localized, short-term, adverse impacts on Greater Sage-Grouse habitat, with beneficial long-term impacts. Actions are consistent with those foreseen in the 2015 Final EIS and are therefore within the range of cumulative effects analyzed in the 2015 Final EIS.
Travel management	White River Field Office: Area-wide travel designations being considered through an ongoing plan amendment Little Snake Field Office: Travel Management plan, identifying route designations consistent with criteria in the 2015 LUPA	These actions represent implementation of objectives from 2015 ARMPA to prioritize travel management in Greater Sage-Grouse habitat. Impacts are covered in the cumulative impacts of the 2015 Final EIS as reasonably foreseeable.
Continued oil and gas development	Disturbance and fragmentation	Development is consistent with the reasonably foreseeable development scenarios analyzed as part of the 2015 Final EIS and the associated field office RMPs. Additional impacts are expected to be within the range analyzed in 2015 Final EIS cumulative impacts analysis.
Plans		
Northwest Colorado Programmatic Vegetation Treatment Environmental Assessment (DOI-BLM-CO-N000-2017-0001-EA) decision	Programmatic NEPA document for streamlining habitat treatments in sagebrush	Impacts were consistent with those identified in the 2015 Final EIS; the Programmatic Vegetation Treatment EA was to facilitate implementation of projects to achieve the vegetation objectives.
Idaho		
Wildland fires 2015–2017	BLM: Past acres burned on BLM-administered land	534,744 acres of HMA burned since the ROD was signed in 2015. Post-fire rehabilitation was implemented. Too soon to determine the effectiveness of rehabilitation.
Habitat treatments 2015–2017	BLM: Past habitat improvement projects	431,295 acres treated to restore or improve potential Greater Sage-Grouse habitat. Too soon to determine the effectiveness of treatment.
ROWs issued 2015–2017	BLM: Past ROWs issued on BLM-administered land	97 ROWs were issued in the planning area but **fewer than 10 were in Greater Sage-Grouse habitat and resulted in new habitat loss**. The effects were mitigated using the mitigation hierarchy.
Soda Fire restoration	BLM: Present habitat restoration and fuel break construction	Restoration of previously burned Greater Sage-Grouse habitat. Results in a net benefit to Greater Sage-Grouse habitat.
Twin Falls Vegetation Project	BLM: Present habitat treatment project that improves Greater Sage-	Restoration of Greater Sage-Grouse habitat and improved rangeland

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
	Grouse habitat district-wide	conditions. Results in a net benefit to Greater Sage-Grouse habitat.
Idaho Falls Vegetation Project	BLM: Present habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions. Results in a net benefit to Greater Sage-Grouse habitat.
Natural gas-producing well near Weiser, Idaho	Private: Present active gas well on private land	Well is not in Greater Sage-Grouse habitat.
Conifer removal	NRCS: Present (2018) 1,862 acres of conifer removal on private land to improve Greater Sage-Grouse habitat	Conifer removal would improve Greater Sage-Grouse habitat and open areas to Greater Sage-Grouse that were previously unavailable because of juniper encroachment.
Weed treatments	NRCS: Present (2018) 95 acres of weed treatments on private land to reduce noxious weeds in Greater Sage-Grouse habitat	Weed treatments allow the native vegetation to outcompete weeds on treated acres.
Water development	NRCS: Present (2018) 21,308 feet of pipeline and 40 watering tanks installed on private land	Water development to move livestock out of natural springs and wet meadows
Pending ROWs 2015–2017	BLM: Future ROW under analysis on BLM-administered land	123 ROW applications have been submitted and are pending review and analysis.
Boise District Vegetation Project	BLM: Future habitat treatment project that improves Greater Sage-Grouse habitat district-wide	Restoration of Greater Sage-Grouse habitat and improved rangeland conditions result in a net benefit to Greater Sage-Grouse habitat.
Tristate Fuel Breaks Project	BLM: Future Greater Sage-Grouse habitat protection	Fuel breaks would protect habitat from wildfires. Some sagebrush may be lost during fuel break construction. Results in a net benefit to Greater Sage-Grouse habitat.
Bruneau-Owyhee Sage-Grouse Habitat Project (BOSH)	BLM: Future removal of juniper encroaching into Greater Sage-Grouse habitat	BOSH would remove encroaching juniper from Greater Sage-Grouse habitat and render the habitat usable for Greater Sage-Grouse. Results in a net benefit to Greater Sage-Grouse habitat.
Conifer removal	NRCS: Future (2019–2023) 5,541 acres of conifer removal on private land to improve Greater Sage-Grouse habitat	Conifer removal would improve Greater Sage-Grouse habitat and open areas to Greater Sage-Grouse that were previously unavailable because of juniper encroachment.
Weed treatments	NRCS: Future (2019–2023) 357 acres of weed treatments on private land to reduce noxious weeds in Greater Sage-Grouse habitat	Weed treatments allow the native vegetation to outcompete weeds on treated acres.
Water development	NRCS: Present (2019–2023) 82,502 feet of pipeline and 46 watering tanks installed on private land	Water development to move livestock out of natural springs and wet meadows

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Nevada and Northeast California		
Wildland Fires 2015-2017	BLM: Past – Acres burned on BLM administered land	Approximately 1.3 million acres of HMA burned between 2015 and 2017. Post fire restoration is being implemented as described below.
Fire Restoration (Emergency Stabilization and Rehabilitation)	BLM: Past and Present – Habitat restoration following wildland fires	1.8 million acres of habitat are either currently being treated, or scheduled to be treated according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire.
Habitat Treatments	BLM Past – Habitat improvement projects	Over 176,000 acres of Greater Sage-Grouse habitat was treated between 2015 and 2017 to maintain or improve conditions for Greater Sage-Grouse. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration.
Land Use and Realty (issued and pending) 2015-2018	BLM: Past ROWs issued on BLM land	227 ROWs were issued in the planning area between 2015 and 2017. This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset using the mitigation hierarchy.
	BLM: -Future pending	85 ROW applications are pending review and analysis. New ROWs would be held to the same mitigation standard under the management alignment alternative as described in the 2015 EIS, so no additional cumulative impacts beyond those described in 2015 are anticipated. In addition, BLM Nevada is also currently evaluating a proposed withdrawal for expansion of the Fallon Naval Air Station, Fallon Range Training Complex for defense purposes.
Oil and Gas	BLM: Past	BLM has offered for lease 425,711 acres in HMAs; 407,478 of that total was leased. Lease stipulations apply as described in the leases according to HMA category.
	BLM: Future pending	BLM has a scheduled lease sale in June 2018 that will offer 110,556 acres in HMAs. Lease stipulations would still be as described in 2015 until a decision is made on this RMPA/EIS.

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Geothermal	BLM: Past and Present	Between 2015 and 2017, the BLM has offered for lease 24,468 acres within HMAs. Lease stipulations apply as described in the leases as analyzed in the 2015 Final EIS. 6 geothermal development permits have been approved and drilled on existing pads on existing leases. McGinness Hills Phase 3 EA authorized up to 42 acres of disturbance on existing leases, which will be offset according to the mitigation hierarchy.
Geothermal	Forest Service: Future Pending	6,901 acres of HMA pending forest service concurrence to lease, no pending geothermal development permits. If in HMAs, stipulations would be as described in 2015.
Locatable Mineral Projects	BLM: Past and Present	Between 2015 and 2017, the BLM has approved 18 new mines and/or expansions in the planning area, which is within the reasonably foreseeable development scenario outlined in the 2015 Final EIS (Section 5.1.16).
	BLM: Future pending	The BLM is currently reviewing 20 plans of development for new mines or expansions, which is within the reasonably foreseeable development scenario outlined in the 2015 Final EIS (Section 5.1.16).
Sage-Grouse Conservation	Forest Service: Future	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they propose alignment with state management plans and strategies.
Oregon		
Emergency Stabilization and Rehabilitation in South Bull Ridge RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2017).
Emergency Stabilization and Rehabilitation in South Ridge Bully Creek RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2015).
Emergency Stabilization and Rehabilitation in North Ridge Bully Creek RNA	Aerial herbicide application	Preliminary results indicate success in treating annual grasses (2015).
Trout Creek Mountain	Grazing permit renewal	Grazing permit renewal allotment includes the East Fork Trout Creek RNA (2016).

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Utah		
Fire and Fuels		
Wildland Fires 2015-2017	Acres burned on BLM administered land	Approximately 61,262 acres of PHMA/GHMA burned between 2015 and 2017. Post fire restoration is being implemented across all population areas that are affected. Effects: Potential loss of habitat value due to the removal of vegetation by fire.
Fire Restoration (Emergency Stabilization and Rehabilitation)	Acres of habitat restoration following wildland fires	Approximately 173,100 acres of HMA were treated/restored between 2015 and 2017. All of these acres are being restored in according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire across all population areas that are affected. Effect: Potentially improve or increase habitat due to vegetative restoration activities.
Vegetation		
Habitat Treatments	Acres of habitat improvement projects	Past: Over 219,000 acres of Greater Sage-Grouse habitat was treated between 2015 and 2017 to maintain or improve conditions for Greater Sage-Grouse across all populations. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration. Effect: Potentially improve or increase habitat due to vegetative restoration activities Future: Over 524,702 acres of Greater Sage-Grouse habitat is being proposed for treatment over the next 5 years. Treatments will include conifer removal, fuel breaks, invasive species removal and habitat protection/restoration across all populations. Effect: Potentially improve or increase habitat due to vegetative restoration activities.

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Lands and Realty		
Land Use and Realty (issued and pending) 2015-2018	ROWs issued or pending on BLM land	Past: Issued 841 ROWs were issued in the planning area between 2015 and 2017. Effect: This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in Greater Sage-Grouse habitat, effects were offset using the mitigation hierarchy. Future: 380 ROW applications are pending review and analysis. Effect: New ROWs would be held to the same mitigation standard under the management alignment alternative as described in the 2015 EIS, so no additional cumulative impacts beyond those described in 2015 are anticipated.
Zephyr Transmission Line	500 kV transmission line	Application received – could impact the Bald Hills, Uintah, Carbon, Strawberry, Emery, and Sheeprocks populations. Effects: May remove vegetation due to construction activities. Towers may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.
Parker Knoll Pump Storage Hydroelectric Federal Energy Regulatory Commission Project	Create electricity using a two-reservoir, gravity-fed system; approximately 200 acres of Greater Sage-Grouse habitat would be lost; mitigation involves Greater Sage-Grouse habitat-improvement work in areas adjacent to the lost habitat.	Still in planning and NEPA stages – could impact the Parker Mountain population. Effects: May remove vegetation due to construction activities. Increased maintenance activities could lead to an increase in collision mortalities. Any associated tall structures may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.
Enefit Utility Project	Five rights-of-way across public lands for infrastructure (a road, 3 pipelines, and 2 powerlines) to support development of a mine on private lands. Estimated 1,037 acres of disturbance for the rights-of-way	Still in planning and NEPA stages – could impact the Uintah population. Effects: May remove vegetation due to construction activities. Increased maintenance activities could lead to an

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
	(7,000-9,000 acre mine and 320-acre processing plant).	increase in collision mortalities. Any associated tall structures may provide perching opportunities for avian predators. However, most of these impacts should be removed by management standards identified in the selected alternative.
Leasable Minerals (Oil and Gas, Non-energy Leasable Minerals, Coal, and Oil Shale and Tar Sands)		
Oil and Gas Leases	Acres of BLM land leased for Oil and Gas development	Past: From 2105-2017 the BLM has leased approximately 25,000 acres in HMAs, of which approximately 25 of those acres were located in PHMA. Lease stipulations apply as described in the leases according to HMA category. Effects: The act of leasing would have no direct effect Future: BLM has a scheduled lease sale in June 2018 that will offer 646 acres in HMAs. Additionally, the BLM is required to conduct quarterly lease sales which could include parcels in HMA. Lease stipulations would still be as described in 2015 until a decision is made on this RMPA/EIS. Effect: The act of leasing would have no direct effect, as no specific disturbance is taken as a result of purchasing a lease. Leasing could occur in any of the populations, but would be most likely to impact the Uintah, Carbon, Emery, and Rich populations due to mineral potential.
Oil and Gas Wells	Oil and Gas exploration and development	Based upon the reasonable and foreseeable development assumptions in Chapter 4, it is anticipated that 2,968 oil and gas wells will be drilled within occupied GRSG habitat within the population areas of which 2,289 wells are anticipated to be producing wells. Exploration wells expected in all populations. Development wells anticipated in Uintah, Carbon, Emery, and Rich populations. Effect: The development of wells within these areas could lead to fragmentation and loss of habitat due to construction

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		activities. Increased noise levels associated with traffic and compressors may impact lek attendance. Increased traffic associated with day to day operations may also increase the potential for collision mortality. However, most of these impacts should be removed by management standards identified in the selected alternative.
Asphalt Ridge Tar Sands Development	Lease approximately 6,000 acres of Tar Sands Lands described in the Asphalt Ridge Tract, which is directly adjacent to existing approximately 16,000 acres of State leases	Still in planning and NEPA stages – could impact the Uintah population. Effect: As a largely underground operation on BLM-administered lands, this would disturb a small amount of land associated with ancillary features. On the portions of the mine that would be mined through surface means, habitat would be lost and noise, dust and light would affect adjacent areas.
Flat Canyon Coal Lease by application	The Flat Canyon Coal Lease Tract is approximately 2, 692 acres of federal coal reserves	Forest Service completed the consent to BLM. Approximately 23 acres out of the 2,692 acres are within the Emery Population Area. Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.
Alton Coal Tract Lease-by-Application	Add 3,576 acres of federal surface or mineral estate to existing 300-acre mine on private land.	Still in planning and NEPA stages – could impact the Panguitch population. Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative
Williams Draw Coal Lease by Application	The proposed action includes 4,200 acres of federal surface and mineral estate; the proposal may have several vents, drilling exploration holes on the surface and underground, and load-out facilities	Still in planning and NEPA stages – could impact the Carbon population. Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		these impacts should be removed by management standards identified in the selected alternative
Greens Hollow Coal Lease by Application	Proposal includes 6,700 acres; a vent is proposed off site; minimal surface disturbances with the exception for exploration drilling	The area has been leased, but development is on hold due to litigation. Would affect the Emery population. Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative
Flat Canyon Coal Lease by Application	Lease by Application 3,792 acres; and Exploration License, 595 acres	Leased and under production in the Carbon population. Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative
Gilsonite Leasing	16,810 acres that are currently under prospecting permit application; the permits would either be issued or a Known Gilsonite Leasing Area would be established, thus allowing competitive leasing	The prospecting permit applications have been in place since the late 1980s; Known Gilsonite Leasing Area report ongoing, after which NEPA will begin to address backlogs for these areas in the Uintah population. Effect: Activities associated with development or prospecting of the permit / lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative
Phosphate Fringe Acreage Lease	1,627 acres of fringe acreage lease on BLM-administered lands	NEPA has started and awaiting a Development Scenario to complete the NEPA for this area in the Uintah population. Effect: The act of leasing would have no direct effect. However, the activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		management standards identified in the selected alternative
Phosphate Competitive Lease Application	1,186 acres on National Forest System lands	NEPA has started and awaiting a Development Scenario to complete the NEPA for this area in the Uintah population. Effect: Activities associated with development of the lease could result in loss of habitat and vehicle mortality due to increased traffic. Most of these impacts should be removed by management standards identified in the selected alternative.
Other Items		
Hard Rock Prospecting Permits being considered on Bankhead Jones	Hard rock exploration permits.	Pending Consideration for this area in the Sheeprocks population. Effect: Activities associated with development of the lease could result in loss of habitat, vehicle mortality due to increased traffic and disruption of seasonal use areas. Most of these impacts should be removed by management standards identified in the selected alternative.
Gooseberry Narrows Reservoir	Bureau of Reclamation project on Forest Service and private land; project is approximately 1,200 acres	EIS is complete, pending EPA review and approval for this portion of the Carbon population. Effect: Activities associated with construction and operation of the reservoir would result in loss of habitat within the project area and a potential increase for vehicle mortality due to increased traffic. However, the habitat lost within the project area may be supplemented by improving the quality and seasonal functionality of the adjacent habitat. Most of the impacts should be removed by management standards identified in the selected alternative.
Motorized Travel Plan Implementation	Implementation of motorized route designation plans across the planning region	Implementation actions underway statewide, with travel planning reasonably foreseeable in the Sheeprocks, Uintah, Carbon and Panguitch populations. Effect: The development of a motorized travel plan would potential help to reduce fragmentation of habitat and centralizing disturbance into areas of lesser importance.

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
Grand Staircase-Escalante National Monument Management Plan	Development of a resource management plan	Still in early planning stages for this area that overlaps the Panguitch population. Effect: This action would provide a framework to manage both the remaining monument areas and the areas no longer within the monument boundaries. It is too early in the process to determine a cumulative effect since the proposed plan is unknown.
Forest Service Sage-Grouse Planning	Forest Service and Utah Division of Wildlife Resources	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they propose alignment with state management plans and strategies. Applicable to all Greater Sage-Grouse populations with National Forest System Lands. Effect: This effort will help to align the Forest Service's plan to be more consistent with the State of Utah's plan and provide the adequate management actions necessary to protect and conserve the Greater Sage-Grouse.
State of Utah Greater Sage-Grouse Management	Update of the State's Conservation Plan for Greater Sage-grouse in Utah, as well as implementation of the State's compensatory mitigation rule	Past: The Conservation Plan for Greater Sage-grouse in Utah was finalized in 2013; it was designed to be updated every 5 years. While it requires a 4:1 mitigation ratio in the State's Sage-Grouse Management Areas (SGMA), there was no established approach to implement that mitigation standard to the State's 11 SGMAs. Effect: The plan establishes the management actions necessary for the State of Utah to continue to enhance and conserve the Greater Sage-Grouse while still allowing for economic opportunities. Future: The State is updating their Greater Sage-Grouse plan and incorporating the compensatory mitigation rule that provides a process to develop a banking system to apply the state's 4:1 mitigation ratio that is designed to improve habitat for Greater Sage-Grouse.

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		Effect: This effort will help to refine and identify areas to improve management actions and allow for the incorporation of new and local science to better balance Greater Sage-Grouse management across the state. It will also provide an opportunity for economic development to occur while offsetting the impacts to habitat quality.
Wyoming		
Wildland Fires 2015-2017	BLM: Past – Acres burned on BLM-administered land	Approximately 137,000 acres of HMA burned between 2015 and 2017. Post fire restoration and habitat treatments are being implemented, as described below, to diminish impacts of habitat lost to wildland fire.
Fire Restoration (Emergency Stabilization and Rehabilitation)	BLM: Past and Present – Habitat restoration following wildland fires	Approximately 4,030 acres of BLM-administered habitat are either currently being treated, or scheduled to be treated according to specific prescriptions outlined in Emergency Stabilization and Burned Area Rehabilitation plans following wildfire.
Habitat Treatments	BLM: Past – Habitat improvement projects	More than 96,000 acres of Greater Sage-Grouse habitat were treated between 2015 and 2017 to maintain or improve conditions for Greater Sage-Grouse. Treatments included conifer removal, fuel breaks, invasive species removal and habitat protection/restoration.
Land Use and Realty (issued and pending) 2015-2018	BLM: Past ROWs issued on BLM land	BLM Wyoming issued approximately 3,000 ROWs in the planning area between 2015 and 2017. This includes amendments and reauthorizations, which may not have resulted in new disturbance. For ROWs occurring in sage grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
	BLM: Future pending	There are approximately 590 ROW applications pending review and analysis. New ROWs under the Management Alignment Alternative would align with the management prescriptions of the Core Area Strategy and State of Wyoming Mitigation Framework. No additional cumulative impacts are anticipated, beyond those described.
Oil and Gas	BLM: Past	BLM Wyoming has offered for lease 861,634 acres; 812,123 acres of that total

Table 4-4
Range-wide Impacts from Past, Present, and Reasonably Foreseeable Future Actions

Action	Type	Effects
		was leased. Leases followed management prescriptions in the RMPs and ARMPA and stipulations apply as described in the leases according to HMA category.
	BLM: Future pending	BLM Wyoming has a scheduled lease sale in June 2018 that will offer 198,588 acres for lease. The actions proposed in the Management Alignment Alternative to not propose to change stipulations analyzed in the 2014 and 2015 plans.
Locatable Mineral Projects	BLM: Past and Present	Between 2015 and 2017, the BLM has approved 17 new mines and/or expansions within the planning area (including non-habitat). The Management Alignment Alternative does not propose changes to any decisions associated with locatable minerals, which were sufficiently analyzed on the existing plans.
	BLM: Future pending	The BLM is currently reviewing 26 plans of operation for new mines, mine expansions and notice-level activities. This number also includes 10 pending mine patents, which are in the process of being patented into private ownership. The Management Alignment Alternative does not propose changes to any decisions associated with locatable minerals, and future impacts would be analyzed in future EISs, adhering to existing requirements of the RMPs and ARMPA.
Leasable Mineral Projects (Coal)	BLM: Past and Present	Two coal lease modifications were issued in 2018, totaling 1,306.61 acres. For lease modifications occurring in sage grouse habitat, effects were offset by the management prescriptions in the RMPs and ARMPA.
	BLM: Future-Pending	BLM Wyoming is currently reviewing 4 coal lease applications/modifications totaling 10,148.56 acres. No management decisions for leasable minerals are proposed for change under the Management Alignment Alternative.
Sage-Grouse Conservation	Forest Service: Future	Forest Service has indicated they will also be amending their land use plans. Specific details of their proposed changes are not yet known, but it is anticipated they will propose alignment with state management plans and strategies.

In addition to the analysis in the 2015 Final EIS in **Table 4-3**, other anticipated incremental impacts are discussed below in association with planning issues being analyzed in this RMPA/EIS.

Under the Management Alignment Alternative, waivers, exceptions, and modifications to NSO stipulations on fluid mineral development in PHMA would be available under specified criteria. The availability of waivers, exceptions, and modifications to NSO would increase the possibility of leasing, permitting, and subsequent ground-disturbing activities occurring within PHMA. However, the established criteria for the granting of a waiver, exception, or modification include the condition that the grant does not negatively impact Greater Sage-Grouse. For example, a waiver could be authorized if the Authorized Officer determines, in collaboration with the State of Utah, that the area lacks the attributes or potential attributes that the stipulation is designed to protect. Therefore, because of this condition in the criteria, there will be no appreciable additive incremental impacts over time on Greater Sage-Grouse from the implementation of this aspect of the Management Alignment Alternative.

Although waivers, exceptions, or modifications could be granted in locations where Greater Sage-Grouse would not be impacted, the grant would authorize ground-disturbing activities that could impact other resources or resource uses. However, because most of the high or moderate potential areas for fluid mineral development are outside PHMA, the likelihood of applying these exceptions and modification would be low. Further, leasing does not guarantee subsequent development, and if development where to occur, the permitted actions would still be required to follow the goals, objectives, and RMP decisions for Greater Sage-Grouse conservation. This in turn means that few ground-disturbing activities are likely to occur, and there will be no appreciable additive impact from the implementation of this aspect of the Management Alignment Alternative, as compared with the No-Action Alternative.

Under the Management Alignment Alternative, the recommendation to withdraw SFAs from location and entry under the Mining Law of 1872 would be removed, as the EIS process considering the withdrawal was cancelled on October 11, 2017. In its 2016 draft Sagebrush Focal Area Withdrawal EIS, the BLM quantified the possible adverse effects from locatable mineral exploration and mining on the approximately 10 million acres of SFAs proposed for withdrawal, finding that they would be limited to approximately 9,000 acres of surface disturbance over 20 years, with approximately 0.58 percent of Greater Sage-Grouse male birds affected per year. The other action alternatives evaluated in the 2016 Draft EIS similarly demonstrated minimal benefit of the proposed withdrawal to Greater Sage-Grouse and its habitat.[2] The cumulative effects of implementing the Management Alignment Alternative are as described in the 2016 SFA Withdrawal Draft EIS, under Alternative A, in which the SFAs was withdrawn from mineral entry.

Under the Management Alignment Alternative, flexibility for adjusting HMA boundary maps would increase through added specificity regarding the process for making the map adjustments. Because the

[2] Importantly, mining operations that do occur are subject to regulation under the BLM's surface management regulations at 43 CFR Part 3809. These regulations ensure that operators comply with environmental standards in conducting exploration, mining, and reclamation. For example, the BLM must approve a plan of operations for locatable mining operations on public lands, which includes compliance with the National Environmental Policy Act, National Historic Preservation Act, and Endangered Species Act. Plans of operations must also include those measures to meet specific performance standards and to prevent unnecessary or undue degradation of the lands (43 CFR 3809.411).

underlying HMA definitions would not change, the more flexible map adjustment process would help ensure that the management actions implemented on the ground in different HMAs reflect the best available science and knowledge of the current habitat conditions for Greater Sage-Grouse.

Similarly, no appreciable additive impacts are anticipated from updating the adaptive management process as described in Management Alignment Alternative. This update would ensure that the BLM is utilizing the best available science and decision support tools to guide management at the appropriate spatial scale, thus improving BLM's assessment and response to ever changing conditions that could impact Greater Sage-Grouse populations and/or habitat. Because any specific response to tripping a hard or soft trigger would be based on the causal factors responsible, presuming a specific response to unknown future conditions would be speculative at best and not reasonably foreseeable.

Under the Management Alignment Alternative, the GHMA designation would be removed with all its corresponding management actions from the 2015 plan amendments. These management actions, including lek buffers, required design features, fluid mineral leasing prioritization, and habitat objectives—which are part of the No-Action Alternative—seek to minimize impacts on Greater Sage-Grouse habitat within GHMA. They provided a hierarchy of potential conditions to minimize effects while still allowing for development. Thus, under the No-Action Alternative development could still occur in GHMA. As analyzed in the 2015 Final EIS, "despite the…Greater Sage-Grouse conservation measures, leasing and development in these areas could result in human alteration, direct loss, and fragmentation of seasonal Greater Sage-Grouse habitats, which, in most cases, have already been fragmented by mineral development activities. Fragmentation could further limit the amount of usable habitat available for the small and declining population of Greater Sage-Grouse that occupy this area" (page 4-119). Thus, although GHMA remains a part of the No-Action Alternative, the potential decline for Greater Sage-Grouse in GHMA exists. Under the Management Alignment Alternative, removing GHMA and its associated management actions would likely incentivize development in areas formally identified as GHMA, resulting in the continued long-term declines of Greater Sage-Grouse population in GHMA. Thus, the impacts from the two alternatives would ultimately be the same, though the Management Alignment Alternative would likely accelerate the effect.

In addition, the Management Alignment Alternative provides that occupied habitat outside PHMA that is lost to development be replaced by creating or improving habitat inside PHMA. Conversely, under the No-Action Alternative, mitigation is required to demonstrate a net conservation gain to compensate for development in GHMA, whether inside or outside GHMA. Comparing 20-year trends, PHMA adds 79.5 more birds every year on average than what is added in GHMA. Assuming stable trends, it would take approximately 2.5 years for the population growth in PHMA to replace the potential loss of Greater Sage-Grouse populations in GHMA. In short, PHMA provides better habitat and better opportunity for the Greater Sage-Grouse, thus while it appears that the loss of GHMA protections would have impacts on Greater Sage-Grouse, due to the Management Alignment Alternative's focus on PHMA, and the mitigation requirement to create/improve habitat within PHMA, these factors likely minimize the potential harms from removing the GHMA classification. It is important to note that it is not anticipated that Greater Sage-Grouse populations in GHMA would be eliminated, but this demonstrates that Greater Sage-Grouse populations in Utah would not result in a long-term decline due to the removal of GHMA.

Under the Management Alignment Alternative, language would be added to clarify how implementation level decisions would be guided regarding mitigation, livestock grazing, buffers, and modifying habitat boundaries to better align with state conservation plans and management strategies. As these updates did not result in any new identifiable direct or indirect impacts there would be no appreciable additive impact from the implementation of this aspect on Greater Sage-Grouse or the resources/uses analyzed herein, as compared with the No-Action Alternative.

Implementation of the increased flexibility under the Management Alignment Alternative could result in site-specific impacts on Greater Sage-Grouse, but such impacts would be minimized and compensated for through habitat improvement. While the No-Action Alternative would provide more direct protection of habitat, the Management Alignment Alternative could impact habitat, but would improve habitat to compensate for those impacts.

4.8 Irreversible and Irretrievable Commitment of Resources

Section 102(2)(C) of NEPA requires a discussion of any irreversible or irretrievable commitments of resources from an alternative, should it be implemented. An irreversible commitment of a resource is one that cannot be reversed, such as the extinction of a species or loss of a cultural resource site without proper documentation. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time, such as extraction of oil and gas.

Should oil and gas deposits underlying Greater Sage-Grouse habitat be extracted, that oil and gas resource would be lost.

The decision to select one of the alternatives described in this RMPA/EIS does not constitute an irreversible or irretrievable commitment of resources because the decision does not authorize implementation-level activities. Instead, decisions made under the selected alternative serve to guide future actions and subsequent site-specific decisions. Following the potential signing of a ROD for the RMPA, the BLM would develop and implement implementation plans (activity- or project-specific). Implementation decisions require appropriate project-specific planning and NEPA analysis and constitute BLM final approval authorizing on-the-ground activities to proceed. Overall, the action alternatives analyzed in this RMPA/EIS are protective of resources over existing conditions and would not subject any of them to irreversible or irretrievable commitments.

4.9 Unavoidable Adverse Impacts

Section 102(C) of the NEPA requires disclosure of any adverse environmental impacts that could not be avoided should the proposal be implemented. Unavoidable adverse impacts are those that remain following the implementation of mitigation measures, or impacts for which there are no mitigation measures. Some unavoidable adverse impacts happen from implementing the RMPA; others are a result of public use of BLM-administered lands in the planning area.

Section 4.25 (page 4-407) of the 2015 Final EIS describes unavoidable adverse impacts from the implementation of the 2015 Final EIS. No additional unavoidable adverse impacts are expected from either alternative of this RMPA/EIS.

4.10 Relationship Between Local Short-Term Uses and Long-Term Productivity

Section 102(C) of NEPA requires a discussion of the relationship between local, short-term uses of the human environment and the maintenance and enhancement of long-term productivity of resources. As described in the introduction to this chapter, short term is defined as anticipated to occur within the first 5 years of implementation of the activity; long term is defined as following the first 5 years of implementation but within the life of the RMPA.

See Section 4.27, Relationship between local short-term uses and long-term uses (page 4-409) of the 2015 Final EIS for more details. No differences are expected from either alternative of this RMPA/EIS.

Chapter 5. Consultation and Coordination

This chapter describes the efforts undertaken by the BLM throughout the process of developing the RMPA/EIS to ensure the process remained open and inclusive to the extent possible. This chapter also describes efforts taken to comply with legal requirements to consult and coordinate with various government agencies. These efforts include public scoping; identifying and designating cooperating agencies; consulting with applicable federal, state, and tribal governments; and identifying "any known inconsistencies with State or local plans, policies or programs" (43 CFR 1610.3-2(e)).

5.1 PUBLIC INVOLVEMENT

5.1.1 Public Scoping

The scoping period began with the publication of the NOI in the *Federal Register* on October 11, 2017. The NOI was titled Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments. During the scoping period, the BLM sought public comments on whether all, some, or none of the 2015 Greater Sage-Grouse plans should be amended, what issues should be considered, and whether the BLM should pursue a state-by-state amendment process or structure its planning effort differently, for example by completing a national programmatic process. Representatives of the BLM engaged with the Western Governors' Association Sage Grouse Task Force in October of 2017 and January of 2018 to discuss the progress of scoping efforts. In addition, the DOI Deputy Secretary has emphasized that input from state governors would weigh heavily when considering what changes should be made and ensuring consistency with the BLM's multiple use mission.

Information about scoping meetings, comments received, comment analysis, and issue development can be found in the scoping report available online here: https://goo.gl/FopNgW.

5.1.2 Future Public Involvement

Public participation efforts will be ongoing throughout the remainder of the RMPA/EIS process. One substantial part of this effort is the opportunity for members of the public to comment on the Draft RMPA/EIS during the comment period. This Proposed RMPA/Final EIS will respond to all substantive comments that the BLM receives during the 90-day comment period. An NOA will be published in the *Federal Register* to notify the public of the availability of the Proposed RMPA and Final EIS. The NOA will also outline protest procedures during the 30-day period. A Governor's Consistency Review will occur concurrent with this protest period. Such protests will be addressed in the RODs, and necessary adjustments may be made to the RMPA/EIS. A ROD will then be issued by the BLM after the release of the Proposed RMPA/Final EIS, the Governor's Consistency Review, and any resolution of protests received on the Proposed RMPA/Final EIS.

5.2 COOPERATING AGENCIES

Federal regulation directs the BLM to invite eligible federal agencies, state and local governments, and federally recognized Indian tribes to participate as cooperating agencies when amending RMPs Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements or Environmental Assessments (43 CFR 1610.3-1(b)). A cooperating agency is any such agency or tribe that enters into a formal agreement with the lead federal agency to

help develop an environmental analysis. More specifically, cooperating agencies "work with the BLM, sharing knowledge and resources, to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks" (BLM Land Use Planning Handbook H-1601-1). These agencies are invited to participate because they have jurisdiction by law or can offer special expertise. Cooperating agency status provides a formal framework for these government units to engage in active collaboration with a lead federal agency in the planning process.

The BLM Utah invited the following agencies (**Table 5-1**) to participate in preparation of this Draft RMPA/EIS in October 2017 and in February 2018. Other agencies requested cooperating agency status as part of their scoping comments.

Table 5-1
Cooperating Agencies

Agencies and Tribes Invited to be Cooperators	Agencies that Accepted	Agencies that Signed Memoranda of Understanding
State of Utah	X	---
Cache County	---	---
Daggett County	---	---
Duchesne County	X	---
Uintah County	X	---
Grand County	---	---
Emery County	X	---
Carbon County	X	---
Wayne County	X	---
Sanpete County	---	---
Sevier County	X	---
Piute County	---	---
Garfield County	X	---
Kane County	X	---
Iron County	X	---
Beaver County	X	---
Juab County	---	---
Millard County	---	---
Tooele County	X	---
Utah County	---	---
Box Elder County	X	---
Rich County	---	---
Morgan County	---	---
Summit County	---	---
Wasatch County	---	---
Weber County	---	---
Sweetwater County, WY	X	---
Sweetwater County Conservation District, WY	X	---
Lincoln County, WY	X	---
Lincoln Conservation District, WY	X	---
Uinta County, WY	---	---

Table 5-1
Cooperating Agencies

Agencies and Tribes Invited to be Cooperators	Agencies that Accepted	Agencies that Signed Memoranda of Understanding
Uinta County Conservation District, WY	X	---
Sublette County, WY	X	---
Sublette County Conservation District, WY	X	---
Natural Resources Conservation Service	---	---
US Fish and Wildlife Service	X	---
US Forest Service	X	---
Department of Defense	X	---
Skull Valley Band of Goshute Indians	---	---
Paiute Indian Tribe of Utah	X	---
Ute Indian Tribe	X	---
Confederated Tribe of the Goshute Indian Reservation	X	---

The BLM worked closely with the State of Utah and cooperating agencies to develop an alternative that would improve alignment between the BLM's RMPs and the state's plans and strategies for managing Greater Sage-Grouse and its habitat. This began with a review of the all the issues raised during scoping to determine identified issues where adjustments to the federal plans could complement state efforts, then extended into alternatives development and preparation of this Draft RMPA/EIS. Coordination efforts included more than 16 specific meetings with partners that include representatives from the State of Utah, counties, tribes, or other federal agencies from January through April. These meetings don't include the myriad one-on-one coordination contacts with representatives regarding issues specific to the given agency.

5.3 AMERICAN INDIAN TRIBAL CONSULTATION

Various federal laws require the BLM to consult with American Indian tribes during the planning/NEPA decision-making process. The BLM reached out to potentially affected Native American tribes and organizations with interests in the planning area by mail requesting government-to-government consultation.

- White Mesa Ute Tribe
- Skull Valley Band of Goshute Indians
- Paiute Indian Tribe of Utah
- Southern Ute
- Ute Indian Tribe
- Northwest Band of Shoshone
- Ute Mountain Ute Tribe
- Confederated Tribe of the Goshute Indian Reservation
- Navajo Utah Commission
- Kaibab Band of Paiute Indians
- Navajo Nation

- Hopi Tribe
- Shoshone - Bannock Tribes
- Te-Moak Western Shoshone
- Eastern Shoshone

The BLM reached out directly to those tribes that expressed interest in the 2015 Greater Sage-Grouse planning process, since this effort is associated with the 2015 effort. The BLM Utah met with the Paiute Indian Tribe of Utah in December 2017 and April 2018 to invite them to consult with the BLM and to keep them updated on the status of the plan amendment. Similarly, the BLM met with the Ute Indian Tribe in January and April 2018 for the same purposes. In March 2018, the BLM Idaho met with the Shoshone Bannock Tribe's resource staff to invite them to consult and to update them on the status of the plan amendment, including the Utah effort. In March 2018, representatives from the Confederated Tribe of the Goshute Indian Reservation participated in a review of the draft alternatives. Consultation efforts will continue throughout the remainder of the planning process.

5.4 LIST OF PREPARERS

This RMPA/EIS was prepared by an interdisciplinary team of staff from the BLM, in collaboration with Environmental Management and Planning Solutions, Inc.

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Christine Fletcher	Special Status Species
Leah Lewis	Fish and Wildlife
Gus Warr	Wild Horse and Burro
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Vicki Tyler	Wildland Fire
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Alan Bass	Livestock Grazing
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Evan Glen	Travel Management
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Stan Perkes	Minerals Specialist (solid leasables, saleables)
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Kahindo Kamau	Fluid Minerals Reasonably Foreseeable Development Scenario
Tyler Ashcroft	Fluid Minerals Reasonably Foreseeable Development Scenario
Terry Snyder	Locatable Minerals
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Glossary

Adaptive management. A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices.

Amendment. The process for considering or making changes in the terms, conditions, and decisions of approved Resource Management Plans or management framework plans. Usually only one or two issues are considered that involve only a portion of the planning area.

Avoidance/avoidance area. These terms usually address mitigation of some activity (i.e., resource use). Paraphrasing the CEQ Regulations (40 CFR 1508.20), avoidance means to circumvent, or bypass, an impact altogether by not taking a certain action, or parts of an action. Therefore, the term "avoidance" does not necessarily prohibit a proposed activity, but it may require the relocation of an action, or the total redesign of an action to eliminate any potential impacts resulting from it. Also see *"right-of-way avoidance area"* definition.

Best Management Practices (BMPs). A suite of techniques that guide or may be applied to management actions to aide in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans specify that they are mandatory.

Biologically Significant Unit (BSU). A geographical/spatial area that includes Greater Sage-Grouse Priority Habitat Management Areas that is used as the basis for comparative calculations to support evaluation of changes to habitat. In Utah, each BSU correlates to the Priority Habitat Management Area within a Population Area.

Compensatory mitigation. Compensating for the residual impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Controlled Surface Used (CSU). CSU areas are open to fluid mineral leasing, but the stipulation allows the BLM to require special operational constraints, or the activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value.

Cooperating agency. Assists the lead federal agency in developing an environmental assessment or environmental impact statement. These can be any agency with jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any tribe or Federal, State, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Council on Environmental Quality (CEQ). An advisory council to the President of the US established by the National Environmental Policy Act of 1969. It reviews federal programs to analyze and interpret environmental trends and information.

Cumulative effects. The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

Decision area. Public lands and mineral estate managed by the US Department of Interior, Bureau of Land Management that are within the planning area and are encompassed by all designated habitat.

Direct impacts. Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place.

Environmental impact statement (EIS). A detailed statement prepared by the responsible official in which a major federal action that significantly affects the quality of the human environment is described, alternatives to the proposed action are provided, and effects are analyzed.

Fluid minerals. Oil, gas, coal bed natural gas, and geothermal resources.

Geographic Information System (GIS). A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and display a potentially wide array of geospatial information.

Habitat. An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle.

Impact. The effect, influence, alteration, or imprint caused by an action.

Indirect impacts. Indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

Leasable minerals. Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. These include energy-related mineral resources such as oil, natural gas, coal and geothermal, and some non-energy minerals, such as phosphate, sodium, potassium, and sulfur. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

Lease stipulation. A modification of the terms and conditions on a standard lease form at the time of the lease sale.

Lek. An arena where male sage-grouse display for the purpose of gaining breeding territories and attracting females. These arenas are usually open areas with short vegetation within sagebrush habitats, usually on broad ridges, benches, or valley floors where visibility and hearing acuity are excellent.

Long-term effect. The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

Management decision. A decision made by the BLM to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

Minimization mitigation. Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 (b)).

Mitigation. Includes specific means, measures or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include avoiding the impact altogether by not taking a certain action or parts of an action, minimizing the impact by limiting the degree of magnitude of the action and its implementation, rectifying the impact by repairing, rehabilitation, or restoring the affected environment, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and compensating for the impact by replacing or providing substitute resources or environments.

Modification. A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

No surface occupancy (NSO). A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads) are prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface occupancy or surface-disturbing activities associated with fluid mineral leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require horizontal drilling from outside the boundaries of the NSO area.

Planning area. The geographical area for which resource management plans are developed and maintained regardless of jurisdiction.

Planning criteria. The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamlines and simplifies the resource management planning actions.

Planning issues. Concerns, conflicts, and problems with the existing management of public lands. Frequently, issues are based on how land uses affect resources. Some issues are concerned with how land uses can affect other land uses, or how the protection of resources affects land uses.

Policy. This is a statement of guiding principles, or procedures, designed and intended to influence planning decisions, operating actions, or other affairs of the BLM. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

Priority Habitat Management Areas (PHMA). Areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage-Grouse populations; they include breeding, late brood-rearing, and winter concentration areas.

Required Design Features (RDFs). Means, measures, or practices intended to reduce or avoid adverse environmental impacts. A suite of features that would establish the minimum specifications for certain activities (i.e., water developments, mineral development, and fire and fuels management) and mitigate adverse impacts. These design features would be required to provide a greater level of regulatory certainty than through implementation of Best Management Practices. In general, the design

features are accepted practices that are known to be effective when implemented properly at the project level.

Resource management plan (RMP). A land use plan as prescribed by the Federal Land Policy and Management Act that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Short-term effect. The effect occurs only during or immediately after implementation of the alternative.

Stipulation (general). A term or condition in an agreement or contract.

Stipulation (oil and gas). A provision that modifies standard oil and gas lease terms and conditions in order to protect other resource values or land uses and is attached to and made a part of the lease. Typical lease stipulations include No Surface Occupancy, Timing Limitations, and Controlled Surface Use. Lease stipulations are developed through the land use planning process.

Timing Limitation (TL). Areas identified for timing limitations, a moderate constraint, are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified timeframes. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive are not allowed. Intensive maintenance, such as workover wells, is not permitted. TLs can overlap spatially with no surface occupancy and controlled surface use, as well as with areas that have no other restrictions.

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Appendix A
Maps

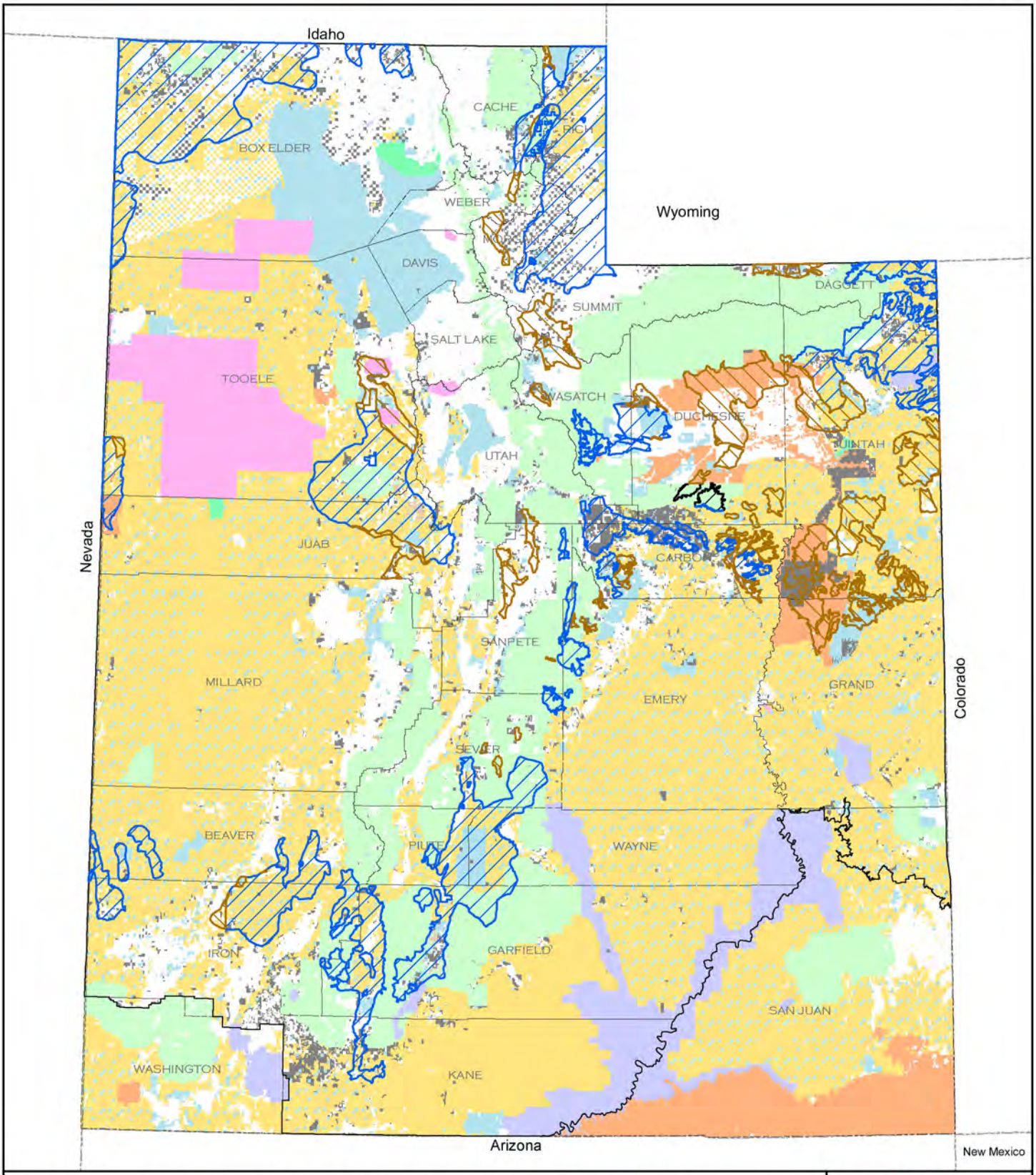


Figure 1-1: Utah Planning/Habitat Areas, Surface Management and Sub-Surface Estate

- Bureau of Land Management
- National Park Service
- US Forest Service
- Indian Reservation
- US Fish & Wildlife
- Department of Defense
- Other Federal
- State/Local
- Private/Other
- Non Federal Surface, Federal Sub-surface
- Anthro Mountain (AM)
- General Habitat Management Areas
- Priority Habitat Management Areas
- Planning Area Boundary
- State Boundary
- County Boundary

N W E S

0 20 40 Miles

Map Area

No warranty is made by the Bureau of Land Management (BLM). The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed.

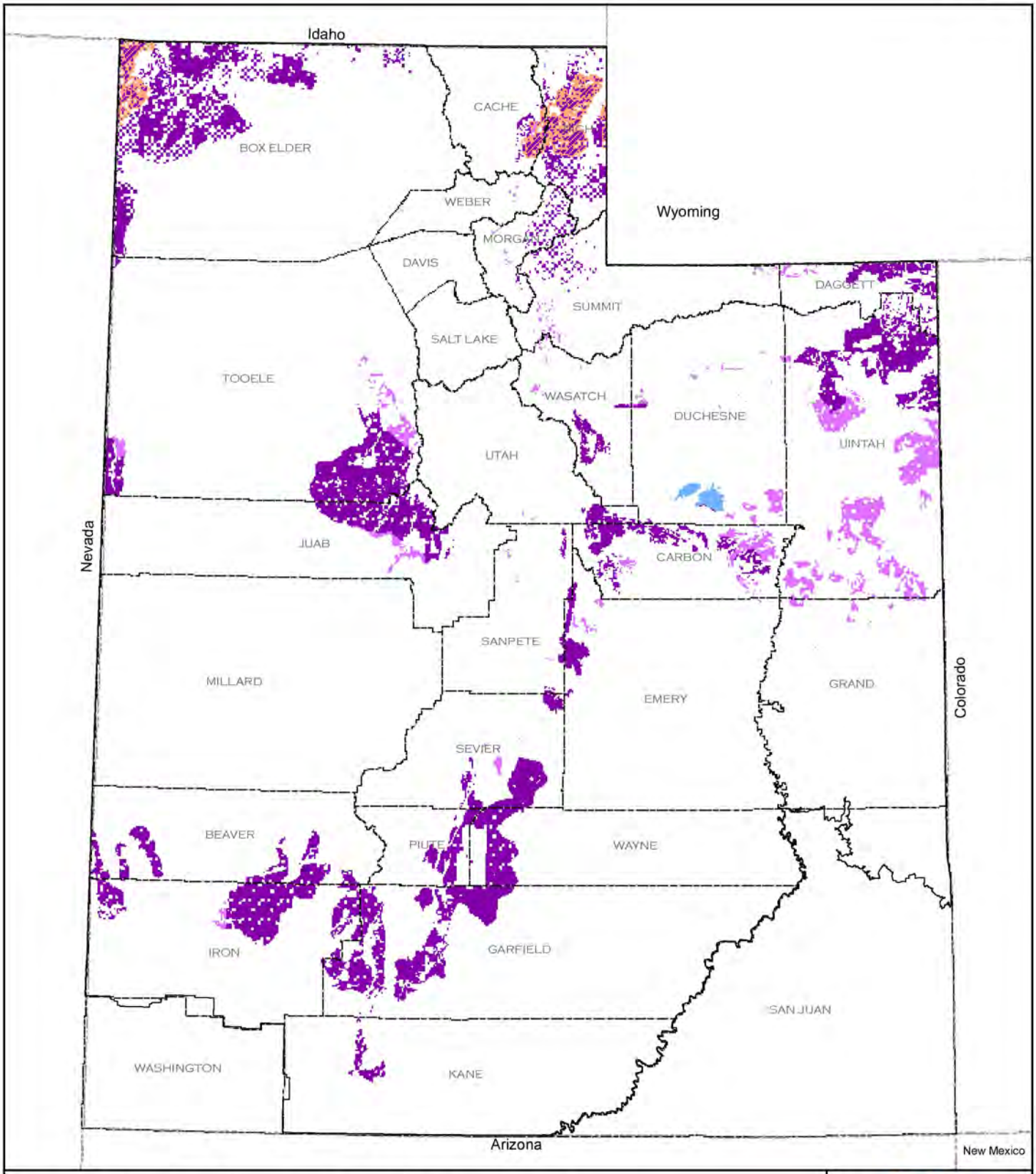


Figure 2-1a: Utah Habitat Management Areas - No-Action Alternative

- Sagebrush Focal Areas
- Priority Habitat Management Areas
- General Habitat Management Areas
- Anthro Mountain (AM)
- Planning Area
- State Boundary
- County Boundary

N W E S

0 20 40 Miles

Map Area

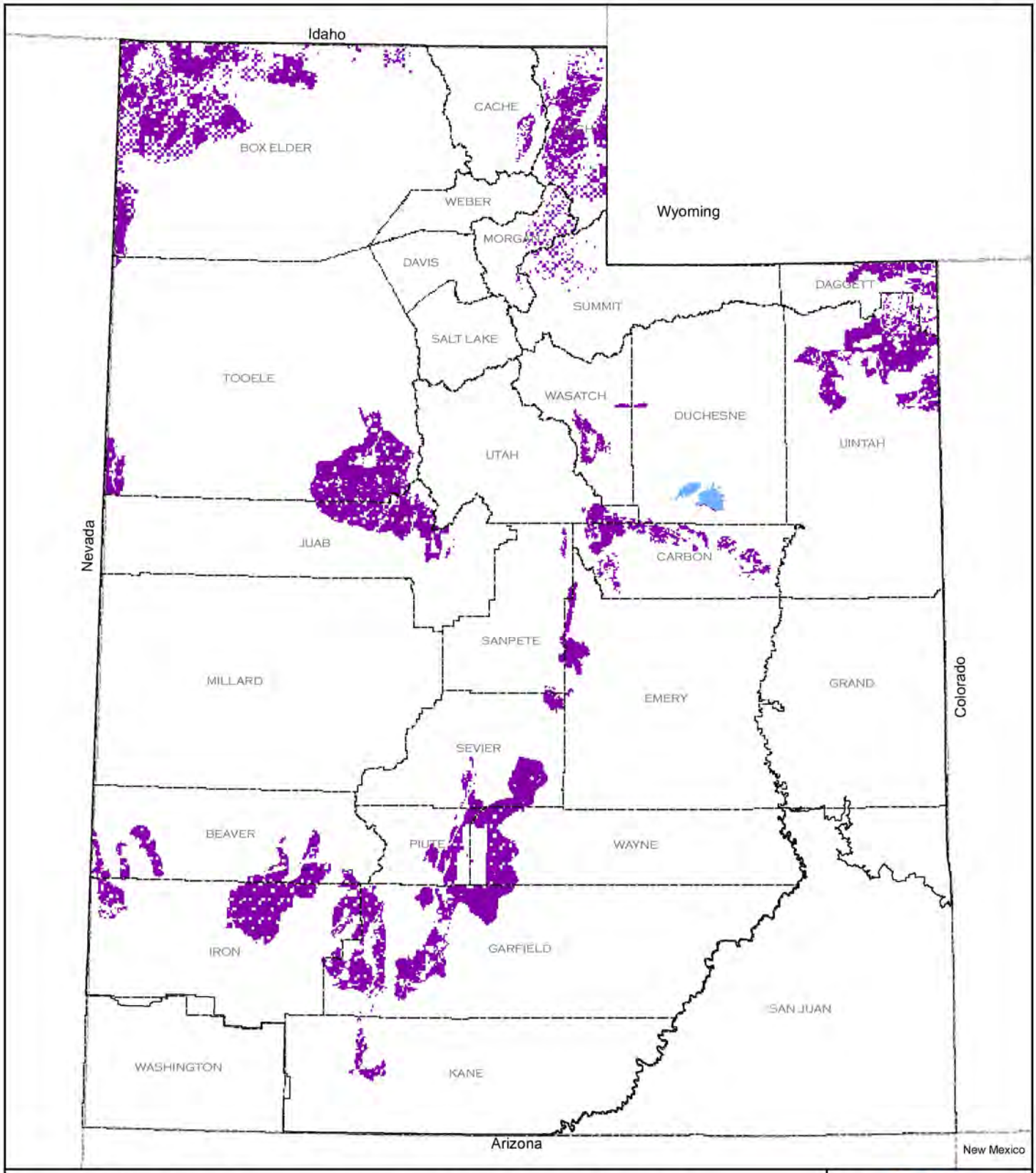


Figure 2-1b: Utah Habitat Management Areas - Management Alignment Alternative

Priority Habitat Management Areas (PHMA)
Anthro Mountain (AM)
Planning Area Boundary
State Boundary
County Boundary

N
W
E
S

Miles
0 20 40

Map Area

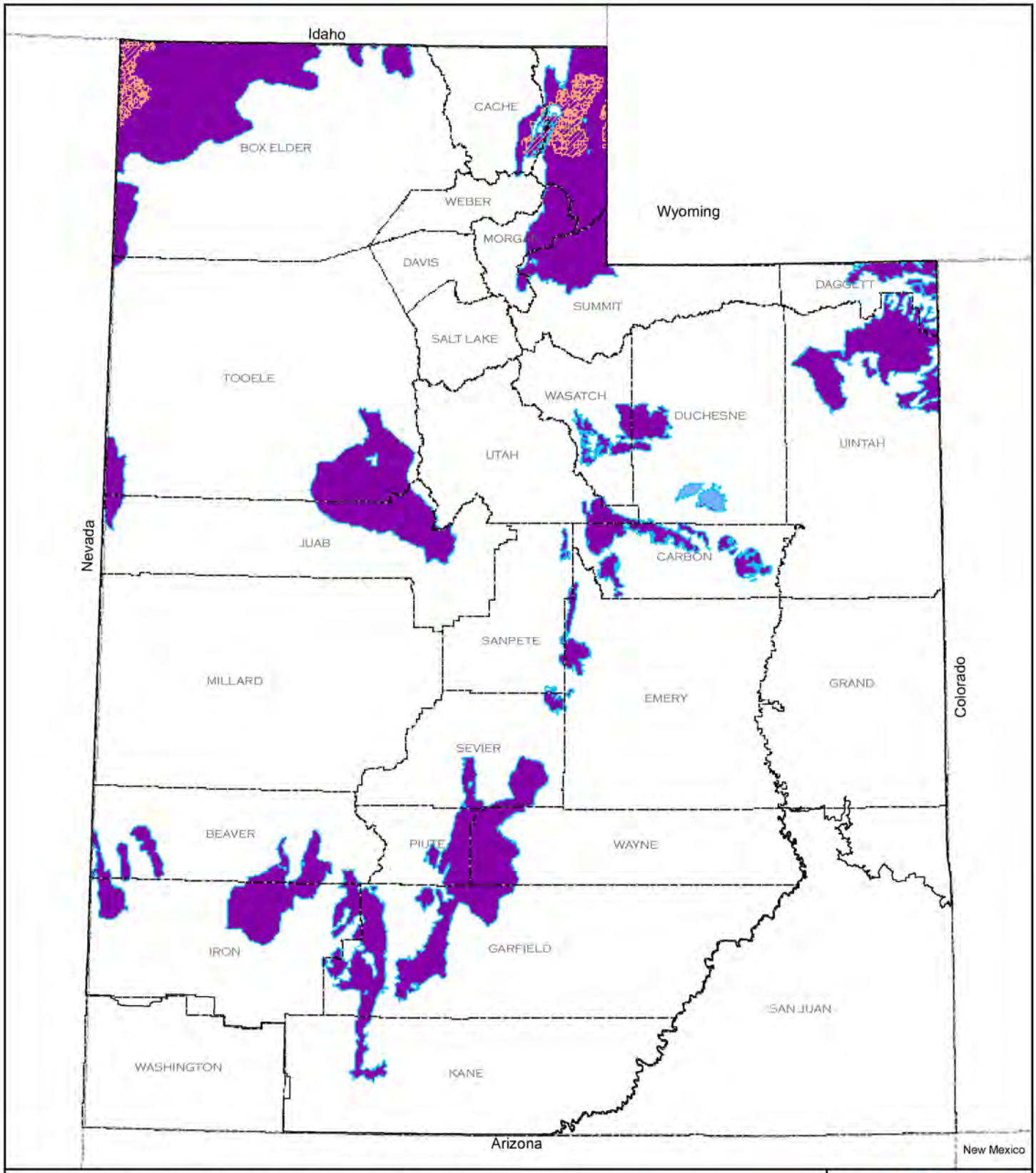


Figure 2-2a: Utah GRSG Biologically Significant Units and Priority Habitat Management Areas - No-Action Alternative

- Sagebrush Focal Areas
- Priority Habitat Management Areas
- Anthro Mountain (AM)
- Planning Area
- State Boundary
- County Boundary

N W E S

0 20 40 Miles

Map Area

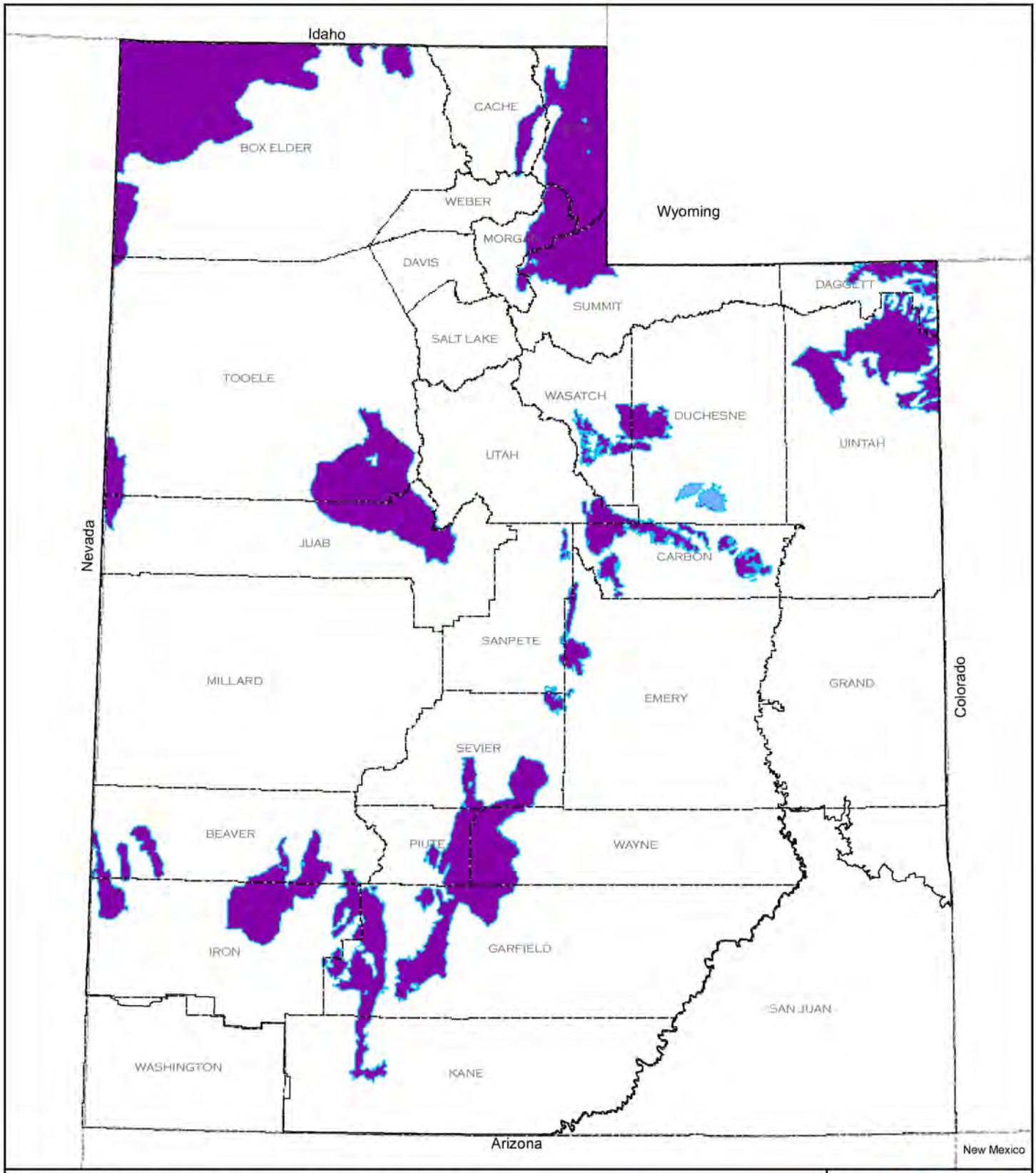


Figure 2-2b: Utah GRSG Biologically Significant Units and Priority Habitat Management Areas - Management Alignment Alternative

- Priority Habitat Management Areas
- Anthro Mountain (AM)
- Planning Area
- State Boundary
- County Boundary

N W E S

0 20 40 Miles

Map Area

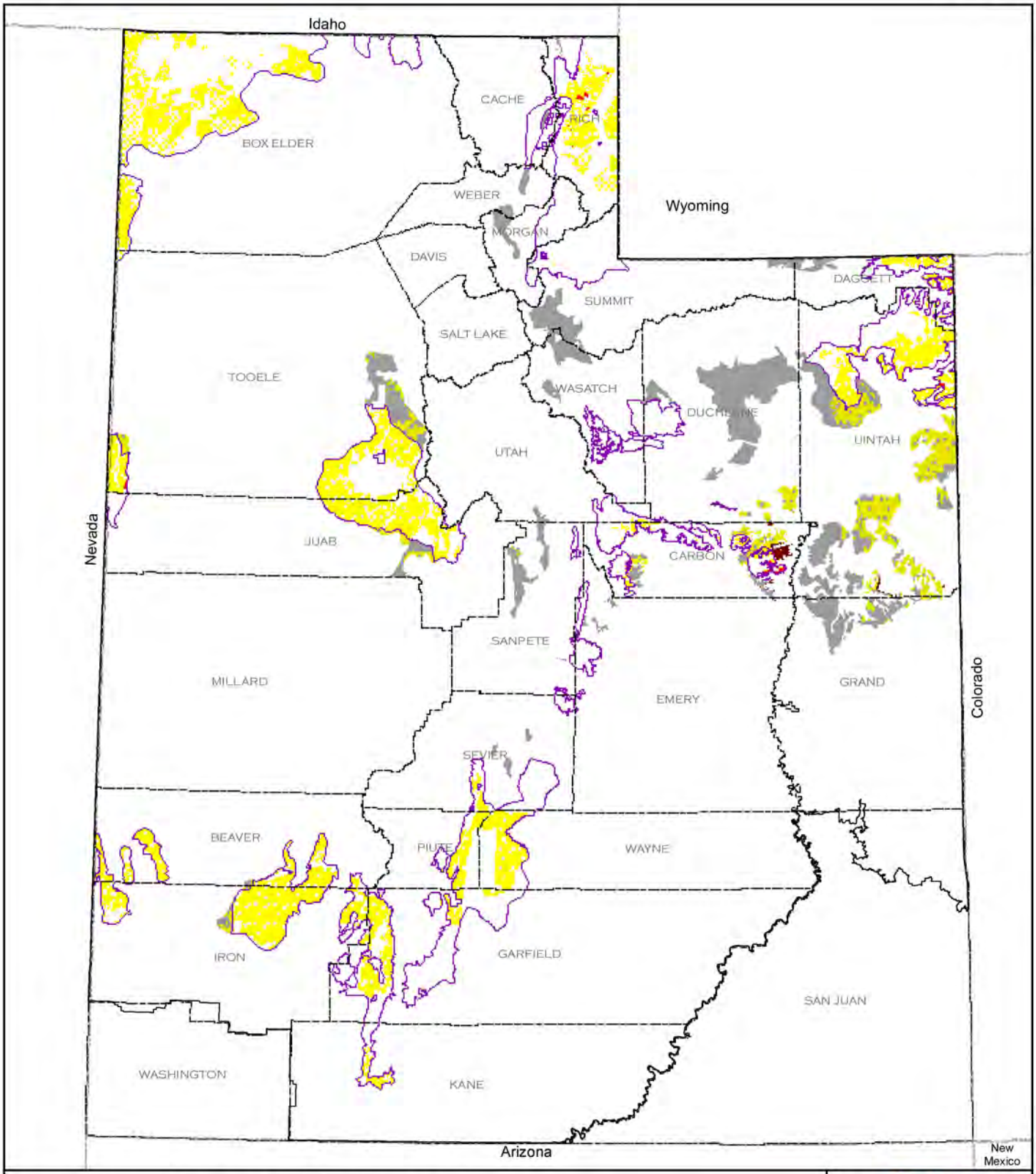


Figure 2-13a: Utah Trails and Travel Management - No Action Alternative

PHMA GHMA

- Outside of BLM Decision Area
- Closed
- Limited
- Open
- Planning Area Boundary
- State Boundary
- County Boundary

N W E S

0 20 40 Miles

Map Area

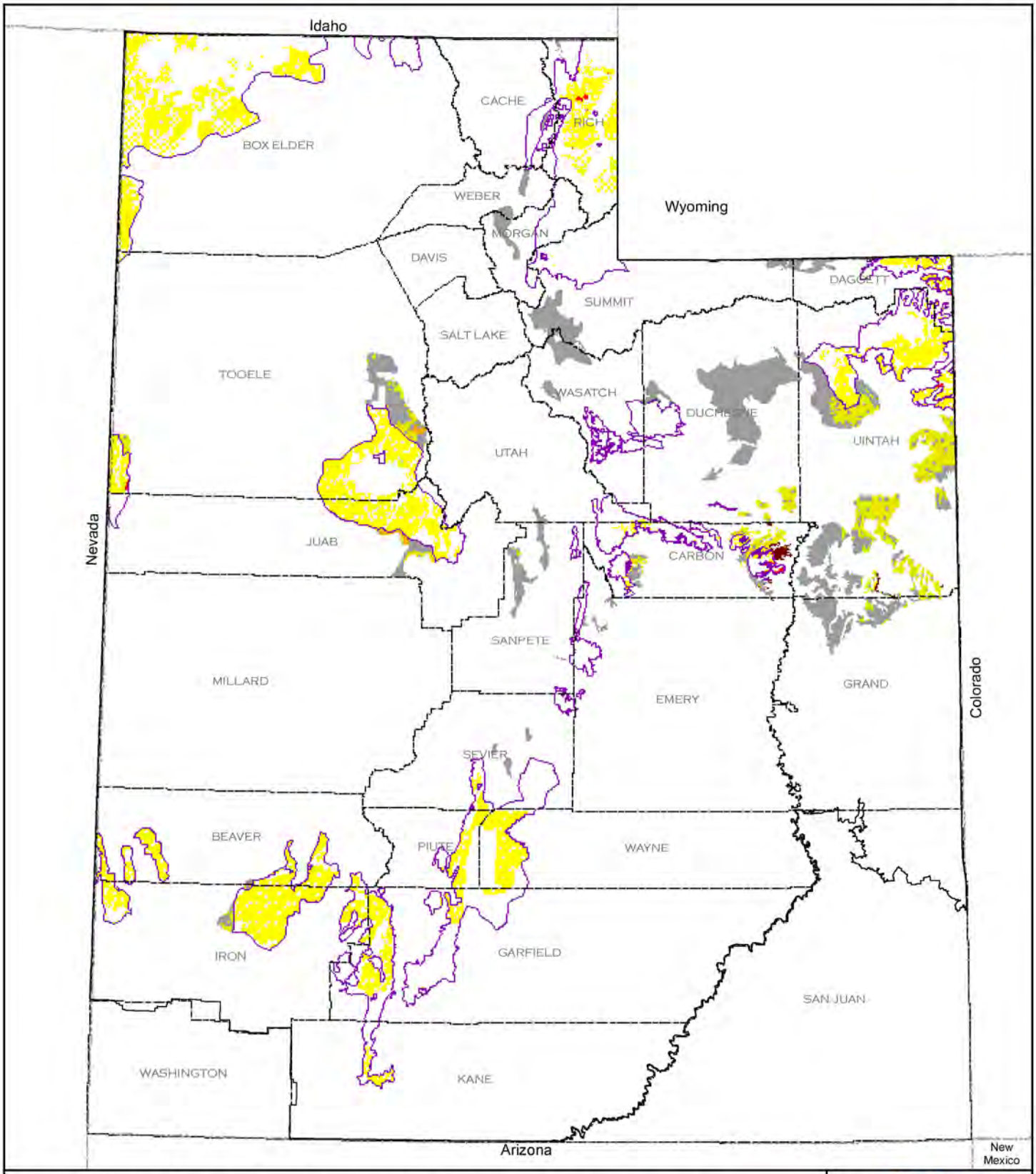


Figure 2-13b: Utah Trails and Travel Management - Management Alignment Alternative

PHMA / GHMA

- Outside of BLM Decision Area
- Closed
- Limited
- Open

- Planning Area Boundary
- State Boundary
- County Boundary

N W E S

Miles 0 20 40

Map Area

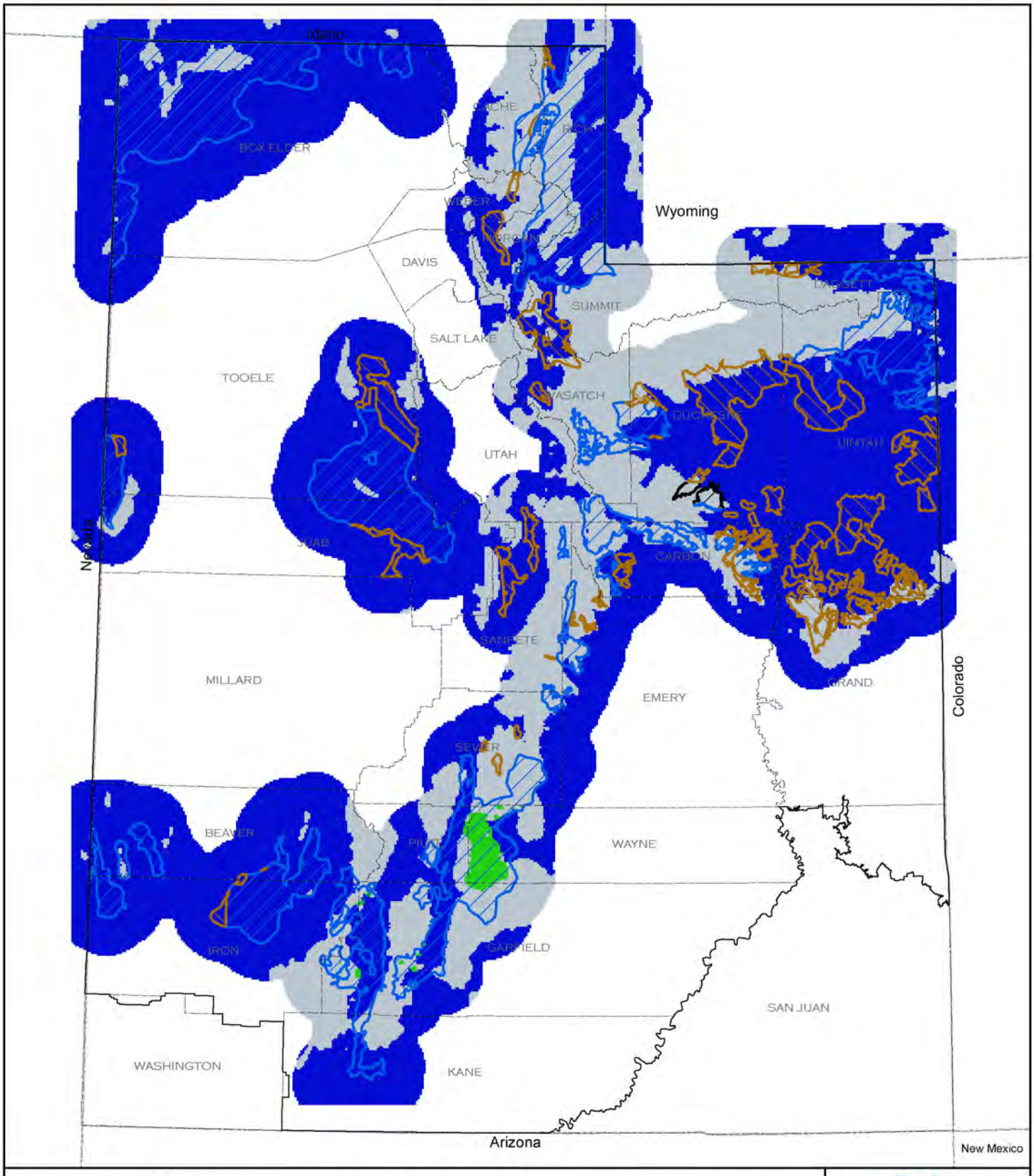


Figure 3-1: Utah Greater Sage-Grouse Local Habitat Clusters

- Anthro Mountain (AM)
- General Habitat Management Areas
- Priority Habitat Management Areas
- Planning Area Boundary
- State Boundary
- County Boundary
- Wasatch
- Low
- Parker

N W E S

0 20 40 Miles

Map Area

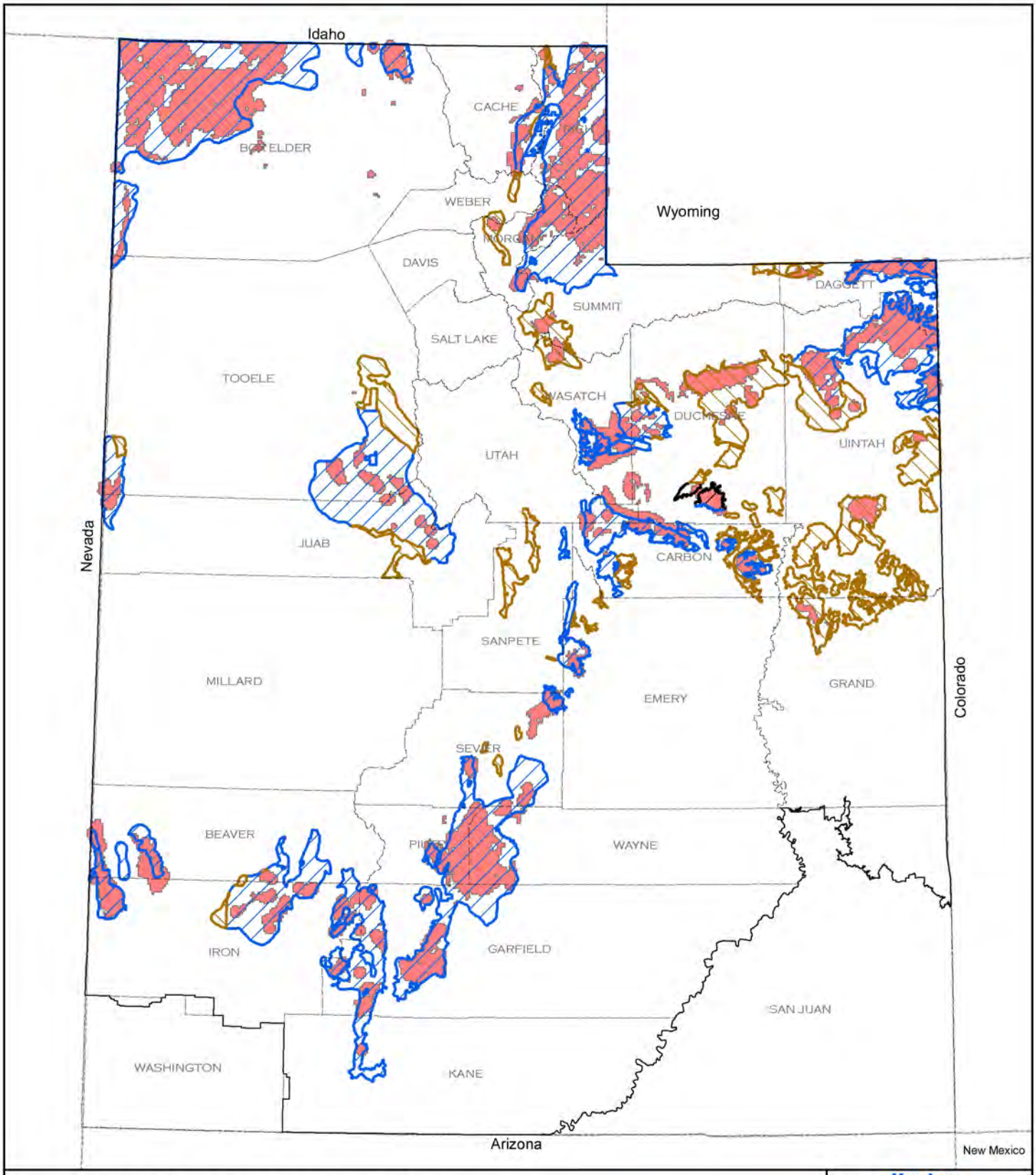


Figure 3-2: Utah Greater Sage-Grouse Breeding Habitat

Breeding
Anthro Mountain (AM)
General Habitat Management Areas
Priority Habitat Management Areas
Planning Area Boundary
State Boundary
County Boundary

N
W
E
S

0 20 40 Miles

Map Area

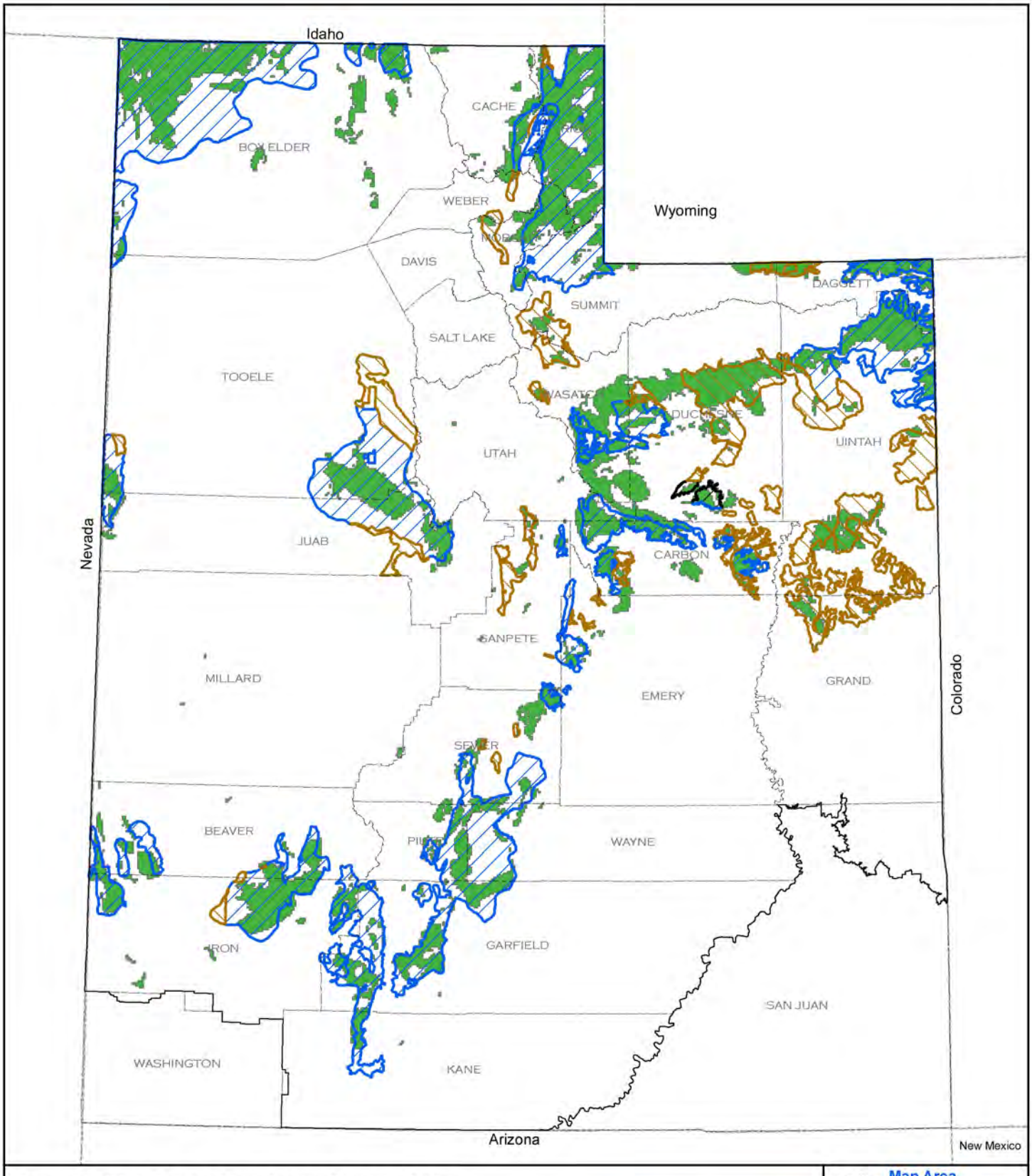


Figure 3-3: Utah Greater Sage-Grouse Summer Habitat

Summer
Anthro Mountain (AM)
General Habitat Management
Priority Habitat Management
Planning Area
State Boundary
County Boundary

N W E S

0 20 40 Miles

Map Area

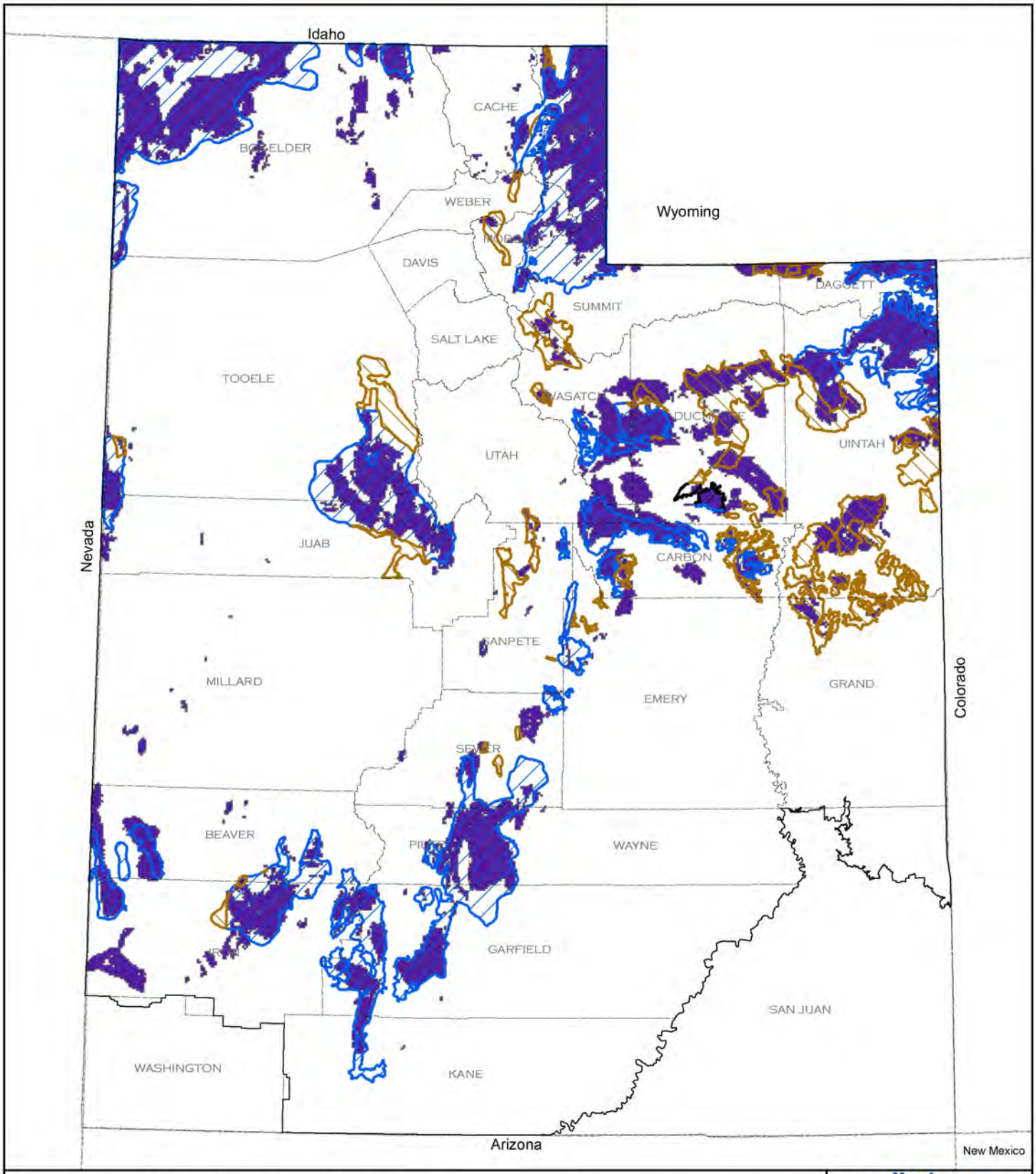


Figure 3-4: Utah Greater Sage-Grouse Winter Habitat

Winter
Anthro Mountain (AM)
General Habitat Management Areas
Priority Habitat Management Areas
Planning Area Boundary
State Boundary
County Boundary

N
W
E
S

0 20 40 Miles

Map Area

Appendix B
Applying Lek Buffer Distances

Appendix B. Applying Lek Buffer Distances

Buffer-distances and Evaluation of Impacts on Leks

Evaluate impacts on leks during the National Environmental Policy Act (NEPA) analysis process. In addition to any other relevant information determined to be appropriate (e.g., State wildlife agency plans), the BLM, through project-specific analysis for NEPA documentation, will assess and address impacts from the following activities using the lek buffer-distances as identified in the US Geological Survey (USGS) Report *Conservation Buffer-distance Estimates for Greater Sage-Grouse – A Review* (Open File Report 2014-1239) and local-based science. The BLM will assess and address impacts within the lek buffer-distances specified unless *justifiable departures* are determined to be appropriate (see below). The starting point for lek buffer-distances is as follows:

- linear features (roads) within 3.1 miles of leks
- infrastructure related to energy development within 3.1 miles of leks
- tall structures (e.g., communication or transmission towers, transmission lines) within 1.7 miles of leks
- low structures (e.g., fences, rangeland structures) within 1.2 miles of leks
- surface disturbance (continuing human activities that alter or remove the natural vegetation – see Table C.2 in Appendix C) within 3.1 miles of leks
- noise and related disruptive activities, including those that do not result in habitat loss (e.g., motorized recreational events), at least 0.25 miles from leks

Justifiable departures will be considered to decrease or increase these distances from the lek where variability is anticipated, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations). The USGS report recognized "that because of variation in populations, habitats, development patterns, social context, and other factors, for a particular disturbance type, there is no single distance that is an appropriate buffer for all populations and habitats across the sage-grouse range." The distances noted above are starting points, from which local information should be applied to determine if local variations in distances are necessary to address lek persistence. The USGS report also states that "various protection measures have been developed and implemented… [which have] the ability (alone or in concert with others) to protect important habitats, sustain populations, and support multiple-use demands for public lands". All variations in lek buffer-distances will require appropriate analysis and disclosure as part of activity authorization. The BLM will use the most recent occupied lek data available from the state wildlife agency to assess and address project-specific impacts on leks.

Actions in PHMA

The BLM, through NEPA analysis, will assess and address impacts within the lek buffer-distances identified above to document that conservation measures address the impacts to leks (e.g., land use allocations, minimization measures, state regulations, site-specific conditions of approval). The BLM may approve actions in PHMA within the applicable lek buffer-distance identified above if:

The BLM, with input from the state fish and wildlife agency, determines, based on best available science, landscape features, and other existing protections, that a lek buffer-distance other than the applicable distance identified above offers equivalent protection to the Greater Sage-Grouse lek and its adjacent nesting habitat; or

- The BLM determines that impacts on lek persistence and associated nesting habitats are minimized such that the project will cause minor or no new disturbance (e.g., co-location with existing authorizations); or
- Mitigation has been developed and implemented which will, alone or in concert with other minimization actions, maintain lek persistence and protect the adjacent nesting habitat.

If analysis determines impacts could affect lek persistence after application of the above, additional conservation measures should be assessed and applied to address impacts (e.g., locating the action outside of the applicable lek buffer-distance(s) identified above).

Range improvements that do not impact Greater Sage-Grouse or range improvements which provide a conservation benefit to Greater Sage-Grouse, such as fences for protecting important seasonal habitats, are exempt from the lek buffer requirement.

Appendix E

Greater Sage-Grouse Disturbance Cap Guidance

Appendix E. Greater Sage-Grouse Disturbance Cap Guidance

INTRODUCTION

In the US Fish and Wildlife Service's (USFWS) 2010 listing decision for Greater Sage-Grouse (GRSG), the USFWS identified 18 threats contributing to the destruction, modification, or curtailment of the GRSG's habitat or range (75 *Federal Register* 13910 2010). The 18 threats have been aggregated into three measures. The three measures are:

- Sagebrush availability (percent of sagebrush per unit area)
- Habitat degradation (percent of human activity per unit area)
- Density of energy and mining (facilities and locations per unit area)

Habitat Degradation and Density of Energy and Mining will be evaluated under the Disturbance Cap and Density Cap respectively and are further described in this appendix. The three measures, in conjunction with other information, will be considered during the National Environmental Policy Act of 1969 (NEPA) process for projects authorized or undertaken by the Bureau of Land Management (BLM).

DISTURBANCE CAP

This land use plan has incorporated a 3 percent disturbance cap, applicable only within GRSG priority habitat management areas (PHMA). The disturbance cap applies to PHMA within 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across state lines), and 2) the project authorization scale.

For the Utah Sub-region, a "BSU" is the total PHMA acreage associated with a GRSG population area. At this scale, the total PHMA acreage in a population area is the denominator portion of the percentage calculation.

At the project scale, the denominator is determined by identifying PHMA that is nearby or affected by the proposed project that is also located in PHMA. The project scale denominator should include the portions of PHMA used by the local population of GRSG, including all seasonal habitats and transition zones, associated with where the project is proposed. If sufficient monitoring information is not available to identify the portions of the PHMA used by a local population of GRSG, project level boundaries should be identified as described in steps 2-4 below. Steps 1and 5-9 are applicable to either approach of identifying the project scale denominator.

The denominator in the disturbance calculation formula consists of all acres of lands classified as PHMA within the analysis area (BSU or project scale). Areas that are not GRSG seasonal habitats, or are not currently supporting sagebrush cover (e.g., due to wildfire), are not excluded from the acres of PHMA in the denominator of the formula. Information regarding GRSG seasonal habitats, sagebrush availability, and areas with the potential to support GRSG populations will be considered along with other local conditions that may affect GRSG during the analysis of the proposed project area.

The numerator portion of the percentage calculation is limited to specific activities associated with specific GRSG threats. At both the BSU and project scale, this includes the 12 items identified in the "Habitat Degradation" column of **Table E-1**, Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring and Disturbance Calculations. At the project scale, seven additional site scale features are included in the cap, identified and defined in **Table E-2**, Seven Site Scale Features Considered Threats to GRSG Included in the Disturbance Calculation for Project Authorizations. No other activities, actions, or threats are included in the numerator when calculating the cap.

At both the BSU and project scale, the best available information should be used to map existing disturbance. At the BSU scale, the west-wide habitat degradation (disturbance) data layers and associated areas of direct influence identified in **Table E-3**, Anthropogenic Disturbance Types for Disturbance Calculations, will be used, at a minimum, to calculate the amount of disturbance and to determine if the disturbance cap has been exceeded as the land use plans are being implemented. Locally collected disturbance data will be used to determine if the disturbance cap has been exceeded for project authorizations, and, as available, may also be used to calculate the amount of disturbance in the BSUs. Locally collected disturbance data should identify the actual areas of disturbance to the extent possible, and are not required to rely on the "Direct Area of Influence" estimates in **Table E-3**.

Although locatable mine sites are included in the degradation calculation, mining activities under the Mining Law of 1872, as amended, may not be subject to the 3 percent disturbance cap. Details about locatable mining activities will be fully disclosed and analyzed in the NEPA process to assess impacts to GRSG and their habitat as well as to goals and objectives, and other agency programs and activities.

DISTURBANCE FORMULAS

Formulas for calculations of the amount of disturbance in PHMA in a Population Area (BSU) and in a proposed project area are as follows:

- For PHMA within a Population Area (BSUs):

  % Degradation Disturbance = (combined acres of the 12 degradation threats[1]) ÷ (acres of all lands within PHMA in a Population Area {BSU}) x 100.

- For the Project Analysis Area:

  % Degradation Disturbance = (combined acres of the 12 degradation threats[2] plus the 7 site scale threats and acres of habitat loss[3]) ÷ (acres of all lands within PHMA in the project analysis area) x 100.

PROJECT ANALYSIS AREA METHOD FOR PERMITTING SURFACE DISTURBANCE ACTIVITIES

1. Identify the portions of the proposed area of physical disturbance within PHMA. In other words, in GIS, "clip" the proposed project to PHMA.

[1] See **Table E-1**.
[2] See **Table E-1**.
[3] See **Table E-2**.

2. Determine potentially affected occupied leks by placing a 4 mile boundary around the proposed area of physical disturbance related to the project. All occupied leks located within the 4 mile project boundary and within PHMA will be considered affected by the project.

3. Next, place a 4 mile boundary around each of the affected occupied leks.

4. PHMA within the 4 mile project boundary as well as the 4 mile lek boundary creates the project analysis area for each individual project. If there are no occupied leks within the 4 mile project boundary, the project analysis area will be that portion of the 4 mile project boundary within PHMA.

5. Map disturbances or use locally available data. Use of NAIP imagery is recommended.

6. Calculate percent existing disturbance using the formula above. If existing disturbance is less than 3 percent, proceed to next step. If existing disturbance is greater than 3 percent, defer the project unless a technical team, in coordination with the appropriate State of Utah agency, determines the project will improve the condition of GRSG habitat through analysis of site-specific GRSG habitat and population information and project design elements (siting, minimization measures, and compensatory mitigation) (see MA-SSS-3B).

7. Add proposed project disturbance footprint area and recalculate the percent disturbance. If disturbance is less than 3 percent, proceed to next step. If disturbance is greater than 3 percent, defer project unless a technical team, in coordination with the appropriate State of Utah agency, determines the project will improve the condition of GRSG habitat through analysis of site-specific GRSG habitat and population information and project design elements (siting, minimization measures, and compensatory mitigation) (see MA-SSS-3B).

8. For disturbance from proposed energy or mining facilities, calculate the disturbance density (listed below under *Density Cap*). If the disturbance density is less than 1 facility per 640 acres, averaged across the project analysis area, proceed to the NEPA analysis incorporating mitigation measures into an alternative. If the disturbance density is greater than 1 facility per 640 acres, averaged across the project analysis area, either defer the proposed energy or mining project or co-locate it into existing disturbed area. Discrete disturbances should be consolidated and localized as much as possible; this could result in small areas where density exceeds 1 facility per 640 acres, but average density in the project analysis area remains beneath the cap.

9. If a project that would exceed the degradation cap or density cap (for energy or mining facilities) cannot be deferred due to valid existing rights or other existing laws and regulations, fully disclose the local and regional impacts of the proposed action in the associated NEPA.

TRAVEL AND TRANSPORTATION FEATURES IN THE DISTURBANCE CAP

When locally collecting disturbance inventories, travel and transportation features would be included or not included as disturbance based on the characteristics of the feature.

The following would count as disturbance (see **Attachment I** for definitions):

- Linear transportation features identified as roads that have a maintenance intensity of 3 or 5
- Linear transportation features identified as primitive roads, temporary routes, or administrative routes that have a functional classification and a maintenance intensity of level 3 or 5

The following items would not count as disturbance:

- Linear transportation features identified as trails.
- Linear transportation features identified as primitive roads, temporary routes, or administrative routes that have a maintenance intensity of either level 0 or 1.
- Linear transportation features identified as primitive routes.
- Linear disturbances.

DENSITY CAP

This land use plan has also incorporated a cap on the density of energy and mining facilities at an average of 1 facility per 640 acres in PHMA in a project authorization area. If the disturbance density from energy or mining facilities in PHMA in a proposed project area is on average less than 1 facility per 640 acres, the analysis will proceed through the NEPA process incorporating mitigation measures into an alternative. If the disturbance density from energy or mining facilities is greater than an average of 1 facility per 640 acres, the proposed project will either be deferred until the density of energy and mining facilities is less than the cap, co-located into existing disturbed area (subject to applicable laws and regulations, such as the Mining Law of 1872, as amended, valid existing rights, etc.), or if the process identified in MA-SSS-3B determines the project will improve the condition of GRSG habitat through analysis of site-specific GRSG habitat and population information and project design elements (siting, minimization measures, and compensation). Facilities affected by the density calculation (**Table E-3**) are:

- Energy (oil and gas wells and development facilities)
- Energy (coal mines)
- Energy (wind towers)
- Energy (solar fields)
- Energy (geothermal)
- Mining (active locatable, leasable, and saleable developments)

Table E-1
Relationship Between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring and Disturbance Calculations

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Energy and Mining Density
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and saleable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights-of-way		X	

Table E-2
The Seven Site Scale Features Considered Threats to Sage-Grouse Included in the Disturbance Calculation for Project Authorizations

1.	Coalbed Methane Ponds
2.	Meteorological Towers
3.	Nuclear Energy Facilities
4.	Airport Facilities and Infrastructure
5.	Military Range Facilities & Infrastructure
6.	Hydroelectric Plants
7.	Recreation Areas Facilities and Infrastructure
Definitions:	
1.	**Coalbed Methane and other Energy-related Retention Ponds –** The footprint boundary will follow the fenceline and includes the area within the fenceline surrounding the impoundment. If the pond is not fenced, the impoundment itself is the footprint. Other infrastructure associated with the containment ponds (roads, well pads, etc.) will be captured in other disturbance categories.
2.	**Meteorological Towers –** This feature includes long-term weather monitoring and temporary meteorological towers associated with short-term wind testing. The footprint boundary includes the area underneath the guy wires.
3.	**Nuclear Energy Facilities** – The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.
4.	**Airport Facilities and Infrastructure (public and private)** – The footprint boundary will follow the boundary of the airport or heliport and includes mowed areas, parking lots, hangers, taxiways, driveways, terminals, maintenance facilities, beacons and related features. Indicators of the boundary, such as distinct land cover changes, fences and perimeter roads, will be used to encompass the entire airport or heliport.
5.	**Military Range Facilities & Infrastructure** – The footprint boundary will follow the outer edge of the disturbed areas around buildings and includes undisturbed areas within the facility's perimeter.
6.	**Hydroelectric Plants** – The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.
7.	**Recreation Areas & Facilities –** This feature includes all sites/facilities larger than 0.25 acres in size. The footprint boundary will include any undisturbed areas within the site/facility.

Table E-3
Anthropogenic Disturbance Types for Disturbance Calculations
Data Sources are Described for the West-Wide Habitat Degradation Estimates

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)	BLM WO-300
	Power Plants	Platts (power plants)	5.0ac (2.0ha)	BLM WO-300
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Enforcement; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	3.0ac (1.2ha)	BLM WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac (3.0ha)/ MW	NREL
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7ft (12.4m)	USGS
	Major Roads	Esri StreetMap Premium	84.0ft (25.6m)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2ft (73.2m)	USGS
Infrastructure (railroads)	Active Lines	Federal Railroad Administration	30.8ft (9.4m)	USGS
Infrastructure (power lines)	1-199kV Lines	Platts (transmission lines)	100ft (30.5m)	BLM WO-300
	200-399 kV Lines	Platts (transmission lines)	150ft (45.7m)	BLM WO-300
	400-699kV Lines	Platts (transmission lines)	200ft (61.0m)	BLM WO-300
	700+kV Lines	Platts (transmission lines)	250ft (76.2m)	BLM WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5ac (1.0ha)	BLM WO-300

Note: Data sources are described for the west-wide habitat degradation estimates.

ATTACHMENT 1: TRAVEL AND TRANSPORTATION MANAGEMENT DEFINITIONS FOR USE IN ANTHROPOGENIC DISTURBANCE CALCULATION

Roads are linear routes managed for use by low clearance vehicles having four or more wheels, and are maintained for regular and continuous use.

Primitive Roads are linear routes managed for use by four-wheel drive or high-clearance vehicles. They do not normally meet any design standards.

Trails are linear routes managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Linear Disturbances are human-made linear features that are not part of the designated transportation network are identified as "Transportation Linear Disturbances." These may include engineered (planned) as well as unplanned single and two-track linear features that are not part of the BLM's transportation system.

Primitive Routes are any transportation linear feature located within a wilderness study area or lands with wilderness characteristics identified for protection by a land use plan and not meeting the wilderness inventory road definition.

Temporary Routes are short-term overland roads, primitive roads or trails which are authorized or acquired for the development, construction or staging of a project or event that has a finite lifespan. Temporary routes are not intended to be part of the permanent or designated transportation network and must be reclaimed when their intended purpose(s) has been fulfilled. Temporary routes should be constructed to minimum standards necessary to accommodate the intended use; the intent is that the project proponent (or their representative) will reclaim the route once the original project purpose or need has been completed. Temporary routes are considered emergency, single use or permitted activity access. Unless they are specifically intended to accommodate public use, they should not be made available for that use. A temporary route will be authorized or acquired for the specific time period and duration specified in the written authorization (e.g., permit, ROW, lease, or contract) and will be scheduled and budgeted for reclamation to prevent further vehicle use and soil erosion from occurring by providing adequate drainage and re-vegetation.

Administrative Routes are those that are limited to authorized users (typically motorized access). These are existing routes that lead to developments that have an administrative purpose, where the agency or permitted user must have access for regular maintenance or operation. These authorized developments could include such items as power lines, cabins, weather stations, communication sites, spring.

Maintenance Intensities

Level 0

Maintenance Description

Existing routes that will no longer be maintained and no longer be declared a route. Routes identified as Level 0 are identified for removal from the Transportation System entirely.

Maintenance Objectives

- No planned annual maintenance.
- Meet identified environmental needs.
- No preventative maintenance or planned annual maintenance activities.

Level 1

Maintenance Description

Routes where minimum (low intensity) maintenance is required to protect adjacent lands and resource values. These roads may be impassable for extended periods of time.

Maintenance Objectives

- Low (Minimal) maintenance intensity.
- Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Grading, brushing, or slide removal is not performed unless route bed drainage is being adversely affected, causing erosion.
- Meet identified resource management objectives.
- Perform maintenance as necessary to protect adjacent lands and resource values.
- No preventative maintenance.
- Planned maintenance activities limited to environmental and resource protection.
- Route surface and other physical features are not maintained for regular traffic.

Level 3

Maintenance Description

Routes requiring moderate maintenance due to low volume use (for example, seasonally or year-round for commercial, recreational, or administrative access). Maintenance Intensities may not provide year-round access but are intended to generally provide resources appropriate to keep the route in use for the majority of the year.

Maintenance Objectives

- Medium (Moderate) maintenance intensity.
- Drainage structures will be maintained as needed. Surface maintenance will be conducted to provide a reasonable level of riding comfort at prudent speeds for the route conditions and intended use. Brushing is conducted as needed to improve sight distance when appropriate for management uses. Landslides adversely affecting drainage receive high priority for removal; otherwise, they will be removed on a scheduled basis.
- Meet identified environmental needs.
- Generally maintained for year-round traffic.
- Perform annual maintenance necessary to protect adjacent lands and resource values.
- Perform preventative maintenance as required to generally keep the route in acceptable condition.

- Planned maintenance activities should include environmental and resource protection efforts, annual route surface.
- Route surface and other physical features are maintained for regular traffic.

Level 5

Maintenance Description

Route for high (maximum) maintenance due to year-round needs, high volume of traffic, or significant use. Also may include route identified through management objectives as requiring high intensities of maintenance or to be maintained open on a year-round basis.

Maintenance Objectives

- High (Maximum) maintenance intensity.
- The entire route will be maintained at least annually. Problems will be repaired as discovered. These routes may be closed or have limited access due to weather conditions but are generally intended for year-round use.
- Meet identified environmental needs.
- Generally maintained for year-round traffic.
- Perform annual maintenance necessary to protect adjacent lands and resource values.
- Perform preventative maintenance as required to generally keep the route in acceptable condition.
- Planned maintenance activities should include environmental and resource protection efforts, annual route surface.

Route surface and other physical features are maintained for regular traffic.

Appendix G

Stipulations Associated with Fluid Mineral Leasing

Appendix G. Stipulations Associated with Fluid Mineral Leasing – Management Alignment Alternative

This appendix lists stipulations for new fluid minerals leases referred to throughout this Greater Sage-Grouse Resource Management Plan Amendment (RMPA).

Surface-disturbing activities are those that normally result in more than negligible disturbance to public lands. These activities normally involve disturbance to soils and vegetation to the extent that reclamation is required. They include, but are not limited to, the use of mechanized earth-moving equipment; truck-mounted drilling equipment; geophysical exploration; off-road vehicle travel in areas designated as limited or closed to off-highway vehicle use; placement of surface facilities such as utilities, pipelines, structures, and oil and gas wells; new road construction; and use of pyrotechnics, explosives, and hazardous chemicals. Surface disturbing activities would not include livestock grazing, cross-country hiking, driving on designated routes, and minimum impact filming permits.

DESCRIPTION OF SURFACE STIPULATIONS

Table G-1 shows the stipulations for the RMPA, including exceptions, modifications, and waivers by alternative. Three types of surface stipulations could be applied to fluid mineral leases: (1) no surface occupancy (NSO), (2) timing limitations (TL), and (3) controlled surface use (CSU). All stipulations for other resources, besides Greater Sage-Grouse, included in the existing land use plans would still be applicable.

Areas identified as NSO would be closed to surface-disturbing activities associated with fluid mineral development.

Areas identified as TL would be closed to surface-disturbing activities during identified time frames. TL areas would be open to operational and maintenance activities, including associated vehicle travel, during the closed period unless otherwise specified in the stipulation.

Areas identified as CSU would require proposals to be authorized only according to the controls or constraints specified. The controls would be applicable to all surface-disturbing activities.

RELIEF FROM STIPULATIONS

With regard to fluid minerals, surface stipulations could be excepted, modified, or waived by the Authorized Officer, but only as specifically identified below. An exception exempts the holder of the land use authorization document from the stipulation on a one-time (or case-by-case) basis. A modification changes the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently removes the stipulation from the lease. The environmental analysis document prepared for site-specific proposals such as fluid minerals development (i.e., master development plans applications for permit to drill or sundry notices) also would need to address proposals to exempt, modify, or waive a surface stipulation.

On BLM-administered lands, to exempt, modify, or waive a stipulation, the environmental analysis document would have to show that (1) the circumstances or relative resource values in the area had changed following issuance of the lease, (2) less restrictive requirements could be developed to protect the resource of concern, and (3) operations could be conducted without causing unacceptable impacts.

With respect to granting relief to stipulations on other types of authorizations, such as solid mineral leases, land use authorizations, etc., any changes to the contractual nature of these instruments would require environmental review and coordination with the Lessee, permit or authorization holder when specific surface-disturbing activities are proposed via an operation plan, permitting action, or similar instrument.

Table G-1
BLM Approve Plan Amendment
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface occupancy within PHMA.	**Purpose:** To protect Greater Sage-Grouse habitat from activity in PHMA. **Exception:** The Authorized Officer with concurrence with the State Director, may grant an exception only where the proposed action: i. Occurs in non-habitat that does not provide important connectivity between habitats; AND ii. Does not impair the function of adjacent seasonal habitats or the life-history or behavioral needs of the Greater Sage-Grouse population from direct and indirect impacts due to project design (e.g., minimize sound, preclude tall structures, require perch deterrents), as demonstrated in the project's NEPA document; OR iii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and development on the parcel in question would have less of an impact to Greater Sage-Grouse or its habitat than on nearby parcel. The proposed project and/or analysis must include measures sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts. Approved exceptions will be made publicly available at least quarterly. **Modification:** The Authorized Officer may grant a modification to a fluid mineral lease NSO stipulation only where an exception is granted, as described above, for the primary disturbance (e.g., well pad, compressor station). A modification to the NSO stipulation could be considered for the associated infrastructure related to the development that are not individually precluded by other Greater Sage-Grouse actions (e.g., roads, pipelines, powerlines). While the NSO stipulation could be modified for this infrastructure, it must still comply with other Greater Sage-Grouse management contained in MA-SSS-3. **Waiver:** The Authorized Officer may grant a waiver to a fluid mineral lease NSO stipulation if, through the appropriate planning

Table G-1
BLM Approve Plan Amendment
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	process (i.e., maintenance, amendment), the area is no longer within PHMA. *The other Greater Sage-Grouse stipulations would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) PHMA associated with a Greater Sage-Grouse population area (referred to as biologically significant units {BSU} when coordinating across state lines), and 2) within the proposed project analysis area.	**Purpose:** To protect PHMA and the life-history needs of Greater Sage-Grouse from habitat loss and Greater Sage-Grouse populations from disturbance and limit fragmentation in PHMA. This would be implemented as a lease notice associated with new leases, in addition to the NSO stipulation. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **Exception:** The 3 percent cap may be exceeded at the proposed project analysis scale if a technical team determines that site-specific Greater Sage-Grouse habitat and population information, combined with project design elements (siting, minimization measures, and compensation) indicates the project will improve the condition of Greater Sage-Grouse habitat within the proposed project analysis area. Factors considered by the team are in **Appendix E**. Such exceptions to the 3 percent disturbance cap may be approved by the Authorized Officer only with the concurrence of the State Director. The finding and recommendation shall be made by the technical team, which should consist of a field biologist or other Greater Sage-Grouse experts, and should include coordination with the appropriate State of Utah agency. **Modification:** The stipulation can be modified to allow disturbance to exceed 3 percent on the lease if disturbance in the project analysis area and PHMA associated with a Greater Sage-Grouse population area remains under 3 percent. **Waiver:** The Authorized Officer may grant a waiver to a fluid mineral lease NSO stipulation if, through the appropriate planning process (i.e., maintenance, amendment), the area is no longer within PHMA. *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
In PHMA, limit the density of energy and mining facilities during project authorization to an average of one energy/mineral facility per 640 acres.	**Purpose:** To protect PHMA and the life-history needs of Greater Sage-Grouse from habitat loss and Greater Sage-Grouse populations from disturbance and limit fragmentation in PHMA. This would be implemented as a lease notice associated with new leases, in addition to the NSO stipulations. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **Exception:** The density cap may be exceeded at the proposed project analysis scale if a technical team determines that site-specific Greater Sage-Grouse habitat and population information, combined

Table G-1
BLM Approve Plan Amendment
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	with project design elements (siting, minimization measures, and compensation), indicate the project will improve the condition of Greater Sage-Grouse habitat within the proposed project analysis area. Factors considered by the team are in **Appendix E**. Such exceptions to the density cap may be approved by the Authorized Officer only with the concurrence of the State Director. The finding and recommendation shall be made by the technical team which should consist of a field biologist or other Greater Sage-Grouse experts, and should include coordination with the appropriate State of Utah agency. **Modification:** Can exceed the density cap on the lease if the broader project area remains under the limit. **Waiver:** None
Surface occupancy or use within the PHMA is subject to the following operating constraints: • Limit noise from discretionary activities (during construction, operation, or maintenance) will not exceed 10 decibels above ambient sound levels at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season (e.g., while males are strutting); support the establishment of ambient baseline noise levels for PHMA habitat area leks. • Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated Greater Sage-Grouse populations.	**Purpose:** Protecting Greater Sage-Grouse from auditory disturbance associated with fluid mineral developments. **Exception:** None **Modification:** As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA Greater Sage-Grouse population behavioral cycles. **Waiver:** None
Surface occupancy or use within the PHMA is subject to the following operating constraints: • Limit the placement of permanent tall structures within PHMA breeding and nesting habitats. • For the purposes of this restriction, a tall structure is any man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors, ravens) that may naturally be absent, or that decreases the use of an area by PHMA. A determination as to whether something is considered a	**Purpose:** To minimize placement of structures that introduce new perching and/or nesting opportunities for avian predators. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **Exception:** None **Modification:** None **Waiver:** None

Table G-1
BLM Approve Plan Amendment
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
tall structure would be made based on local conditions such as existing vegetation or topography.	
No surface disturbance allowed between Feb 15 – June 15, in PHMA Greater Sage-Grouse breeding, nesting, and early brood-rearing habitat.	**Purpose:** To seasonally protect Greater Sage-Grouse within PHMA from disruptive activity during breeding, nesting and early brood-rearing. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect Greater Sage-Grouse, in coordination with UDWR biologists. **Waiver:** None
No surface disturbance allowed between April 15 – August 15, in PHMA Greater Sage-Grouse brood-rearing habitat.	**Purpose:** To seasonally protect Greater Sage-Grouse within PHMA from disruptive activity during brood-rearing. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect Greater Sage-Grouse, in coordination with UDWR biologists. **Waiver:** None
No surface disturbance allowed between Nov 15 – March 15, in PHMA Greater Sage-Grouse winter habitat.	**Purpose:** To seasonally protect Greater Sage-Grouse within PHMA from disruptive activity during the winter season. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect Greater Sage-Grouse, in coordination with UDWR biologists. **Waiver:** None
Outside of PHMA, areas that are 1) within of State of Utah opportunity areas, and 2) within the lek buffer distances identified in	**Purpose:** Protecting Greater Sage-Grouse from indirect disturbance near leks within PHMA.

Table G-1
BLM Approve Plan Amendment
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
Appendix B for leks located in PHMA, will be subject to the following operating constraints: • Limit noise from discretionary activities (during construction, operation, or maintenance) so it will not exceed 10 decibels above ambient sound levels at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season (e.g., while males are strutting); support the establishment of ambient baseline noise levels for PHMA habitat area leks. • Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated Greater Sage-Grouse populations.	**Exception:** None **Modification:** As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA Greater Sage-Grouse population behavioral cycles. **Waiver:** None
Outside of PHMA, areas that are 1) within of State of Utah opportunity areas, and 2) within the lek buffer distances identified in Appendix B for leks located in PHMA, will be subject to the following operating constraints: • Limit the placement of permanent tall structures within PHMA breeding and nesting habitats. • For the purposes of this restriction, a tall structure is any man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors, ravens) that may naturally be absent, or that decreases the use of an area by PHMA. A determination as to whether something is considered a tall structure would be made based on local conditions such as existing vegetation or topography.	**Purpose:** To minimize placement of structures that introduce new perching and/or nesting opportunities for avian predators. **Exception:** None **Modification:** None **Waiver:** None **For the purposes of this restriction, a tall structure is any manmade structure that provides for perching/nesting opportunities for predators (e.g., raptors and ravens) that are naturally absent, or that decreases the use of an area by Greater Sage-Grouse. A determination as to whether something is considered a tall structure will be made based on local conditions such as existing vegetation or topography.

Appendix I
Adaptive Management

Appendix I. Adaptive Management

Adaptive management is a decision process that promotes flexible resource management decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps with adjusting resource management directions as part of an iterative management process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a "trial and error" process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. On February 1, 2008, the Department of the Interior published its Adaptive Management Implementation Policy (522 DM 1). The adaptive management strategy presented within this Resource Management Plan Amendment (RMPA) complies with this policy and direction.

In relation to the Bureau of Land Management (BLM) and US Forest Service (Forest Service) National Greater Sage-Grouse Planning Strategy, adaptive management provides additional certainty for effectiveness of conservation when implemented in concert with the Greater Sage-Grouse conservation measures presented in the plan amendments. This adaptive management strategy is incorporated along with the conservation measures in the plan to ameliorate threats to Greater Sage-Grouse, thereby increasing the likelihood that the combined conservation measures are effective in reducing threats to that species. The following provides the BLM's adaptive management strategy for the Utah Greater Sage-Grouse RMPA.

UTAH SUBREGIONAL ADAPTIVE MANAGEMENT STRATEGY

The Utah Subregional adaptive management strategy includes the identification of soft and hard triggers and a management approach for responding to those triggers. In the spring of 2014, a multi-agency Utah group coordinated to develop adaptive management triggers for Greater Sage-Grouse populations in Utah. This group includes State of Utah Division of Wildlife Resources (UDWR), Utah Governor's Public Lands Policy Coordination Office, US Fish and Wildlife Service (USFWS), Forest Service, and BLM. A biologist focus group, a subset of the Utah adaptive management group, was tasked with reviewing Greater Sage-Grouse monitoring data and determining what population and habitat triggers are appropriate given the natural cyclic variability observed in all Greater Sage-Grouse populations.

BACKGROUND INFORMATION

Greater Sage-Grouse Population Change

As is discussed in the 2015 Final EIS, Section 3.3, Greater Sage-Grouse populations across the range fluctuate cyclically. In Utah the cycle seems, generally, to follow a 10-year pattern. The exact reason for the cycle is currently unknown. However, various aspects (i.e., vital rates) of the Greater Sage-Grouse's life cycle have been linked by past research to changes in environment and habitat.

Utah's Greater Sage-Grouse populations will likely continue to fluctuate over the short term and on their historic 10-year cycle. The general direction of the cycles, whether populations are trending up or down, is the critical conservation concern for Greater Sage-Grouse. Connelly et al. (2004) showed that rangewide the trend was decreasing from the 1960s to the mid-1980s, hitting a low in the mid-1990s,

but then stabilizing to the present. Certainly, if habitat loss and degradation occur within a population's habitat base the population would likely decline in succeeding years without habitat restoration and/or other management intervention. However, if the habitat base remains intact it is likely that the population will continue to fluctuate, but remain relatively stable in the long term. Greater Sage-Grouse require large landscapes of contiguous sagebrush habitat to carry out their life-cycle. Securing these large landscapes from further degradation and adding more habitat through restoration is the primary conservation action for Greater Sage-Grouse.

Lek Count Data

When considering monitoring data there is always uncertainty, error, and statistical noise. Greater Sage-Grouse lek (breeding ground) counts are not comprehensive in nature, but rather represent a sample of and index to the population. This uncertainty carries over into using lek counts to make decisions for implementing management actions. Any metric of population change (e.g., percent annual change, percent above or below 10-year average, etc.) includes the uncertainty that comes from sampling populations. Therefore, creating precise decision triggers based on lek data is inherently problematic, and should include a relatively large range of specific metrics and management options. However, much more certainty exists concerning the effect of habitat loss or degradation, and precise decision triggers would be much more reliable for habitat conservation purposes.

For Greater Sage-Grouse, while some production data has been collected in various populations, the only data that have been consistently collected across the range of the species and within Utah for this species has been males attending leks. While male lek attendance has been the primary source of data collected and is used as an index of Greater Sage-Grouse populations, it is critical that the strengths and weaknesses of lek counts be understood to appropriately evaluate how confidence in the data may vary. For instance, the number of males counted on leks can vary depending upon how many times the lek was counted in a spring (at least three times is recommended to increase the chances that the peak male lek attendance was observed), time of day (three counts conducted between 30 minutes before sunrise to 1 hour after sunrise), and the weather conditions (calm). Standardized lek counts have become more common practice recently. The lek count protocol is based on lek attendance research (Jenni and Hartzler 1978; Emmons and Braun 1984; Connelly et al. 2003). In general, lek count protocol has become a priority in the last 15 years and adherence to the protocol increases the confidence in and comparability of the resulting data.

Early in the history of collecting lek count data in Utah, the likelihood that leks were known depended on two things: 1) the proximity of the lek to areas frequented by people during dawn (near roads or corrals); and 2) the size of the lek; the larger the lek, the more likely it was noticed. Therefore, the leks counted earliest in the history of Greater Sage-Grouse monitoring in Utah were either large leks and/or easily accessible leks (e.g., near roads). In the last 20 years in Utah and throughout the West, efforts to count and find leks have increased substantially (though there is variation in the number of leks counted, up and down, each year). With these concerted efforts to find new leks, new and generally smaller leks were added to the list of known leks. Consequently, by adding primarily small leks to the overall state "average males per lek", the state average males per lek decreases even though more birds and more leks are being counted. In addition, where graduate students have studied Greater Sage-Grouse populations, new leks have been found as a result of the amount of time on the landscape and radio-telemetry information. From these increased efforts, the number of leks counted has increased from 14 leks in 1959, 99 leks in 1980, up to 362 leks in 2012 (2,485 percent increase) (UDWR 2009). Similarly,

the total number of birds counted in a spring has increased, based on State of Utah data, from 451 males in 1959 to 3,231 males counted in 2012 (616 percent increase).

ADAPTIVE MANAGEMENT TRIGGERS

This overarching adaptive management strategy includes the identification of a two-tiered system of triggers (soft and hard) for both Greater Sage-Grouse populations and habitat. These triggers are not specific to any particular project, but identify population and habitat thresholds which, if exceeded/tripped, would result in a change in how the BLM addresses management of Greater Sage-Grouse in that area. Triggers have been based on the two key metrics that are regularly monitored: population declines and habitat loss.

Soft triggers represent an intermediate threshold indicating that management changes are needed to address habitat or population losses before they become severe. They represent a "caution" signal that changes outside the normal range of variation may be occurring. If a soft-trigger is tripped, monitoring data would be evaluated and management would be implemented to stop further declines.

Hard triggers represent a threshold indicating that more direct and refined actions are quickly needed to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the BLM plan. The intent of a soft-trigger is to identify changes in management at a point where further losses could be avoided; given this, there is no expectation of hitting a hard trigger. If unforeseen circumstances occur that trip either a population or habitat hard trigger, more restrictive management will be required.

The changes in management required after a trigger is tripped are included below in the "Management Response" section. The following sections present the adaptive management triggers, organized first by the metric being addressed (population or habitat) and then by the associated soft and hard triggers.

Population Triggers

When evaluating population-based adaptive management triggers, this adaptive management strategy includes consideration of two aspects of population data to ensure that one set of data, if in error for any reason, would not unnecessarily trigger management changes. Population declines will be evaluated using the following two metrics:

- Population trends based on "trend leks," and
- Population growth as indicated by Lambda (λ) (as described below) from one year to the next for monitoring associated with all leks within a priority habitat management area (PHMA).

Trend leks are either leks that have been surveyed consistently in the last 20 years or leks that provide spatial representation within PHMA. Twenty years was chosen as the appropriate time period to identify trend leks with consideration of the cyclic nature of Greater Sage-Grouse populations, and to capture monitoring results during the period of time when lek counts were conducted more consistently, and when lek count protocol was more standardized. The Utah Greater Sage-Grouse lek counts appear to have been in a low oscillation in the mid-1990s and again in the last few years (2011). During this same time period, standard lek count protocol use was increasing. Criteria for the trend leks are below:

- Starting with 1996, a lek that had > 1 male counted within one of 5 years between 1994-1998,
- Lek counts have occurred on 80 percent of the years since 1994 (16 years), **AND**

- Lek counts on 50 percent of the years are > 1 (8 of 16), **OR**
- A lek provides spatial representation (in the case of small populations, all leks may be included).

Lambda (λ) is the population change from a given Year 1 to the following Year 2 by dividing the total PHMA males counted in Year 2 by the total males counted in Year 1. If the result equals one (1), there was no change in the population level. A lambda that exceeds one (> 1) means the population is growing. A lambda that is less than one (< 1) indicates a declining population. To generate a consistent and comparable number, lambda can only be calculated on leks that are counted in consecutive years. This is to ensure that the increase in number of leks does not skew population data. This way, lambda can only be calculated for a lek if it is counted in 2 consecutive years. Some examples of calculating lambda are as follows:

- Males in Year 2/males counted in Year 1 = Lambda (λ)

  Example A – No Change in Population: Assuming in 2000, the total males counted on leks in PHMA is 350 and in 2001, on the same leks counted in 2000, the total males counted are 350.

- 350/350 = 1; since lambda is 1, the population is unchanged.

  Example B: Increasing Population: Assuming in 2000, the total males counted on leks in PHMA is 350 males and in 2001, on the same leks counted in 2000, the total males counted are 430.

- 430/350 = 1.23; since lambda is > 1, the population is increasing.

  Example C: Decreasing Population: Assuming in 2000, the total males counted on leks in PHMA is 350 males and in 2001, on the same leks counted in 2000, the total males counted are 280.

- 280/350 = 0.8; since lambda is < 1, the population is decreasing.

Multiple population triggers were established to account for different potential population trends for which management and monitoring should respond. This includes triggers to address rapid short-term declines in a population, as well as persistent long-term decreases of both trend leks or all monitored leks (using lambda - λ).

Population Soft Triggers

A population soft trigger would be met in PHMA if any one of 1a, 1b, 1c, or 1d are met, AND number 2 is also met:

1a) 4 consecutive years of 10 percent or greater annual decline in average males per lek in each year, based on "trend leks"; **OR**

1b) 6 consecutive years of declining average males per lek in each year, based on "trend leks"; **OR**

1c) 40 percent or greater decline in average males per lek in any single year, based on "trend leks"; **OR**

1d) 50 percent or greater decline in average males per lek in a 4 consecutive year period, based on "trend leks"; **AND**

2) Lambda of less than 1 in 4 consecutive years, based on all leks in the PHMA. Using criteria 1c, the 40 percent decline in a single year may occur at any point of the four year lambda monitoring window (year one, two, three or four).

For PHMA in the Ibapah and Hamlin Valley population areas, if a Greater Sage-Grouse population adaptive management trigger (hard or soft) from a Nevada land use plan is met on Greater Sage-Grouse habitat in Nevada that is adjacent to the Ibapah or Hamlin Valley PHMA, a soft trigger would be met for the Utah areas, regardless of whether the above criteria have been met or not.

The management to be applied if the soft trigger criteria are met is identified below under the Management Response header. The intent of the population soft trigger is to identify changes to population trends and adjust management before a hard trigger is met.

Population Hard Triggers

A population hard trigger would be met in PHMA if any one of the following criteria (a-d) is identified through monitoring:

Short-term Decline

a) 4 consecutive years of 20 percent or greater annual decline in average males per lek in each year, based on "trend leks"; **OR**

b) average males per lek, based on trend leks, drops 75 percent below the 10-year rolling average males per lek in any single year (not a 75 percent decrease, but a decline under 75 percent of the 10-year rolling average); **OR**

Long-term Decline

c) Lambda of less than 1 in 6 consecutive years, based on all leks within the PHMA; **OR**

d) Lambda of less than 1 in 8 years of a 10-year window, based on all leks within the PHMA.

The management to be applied if the hard trigger criteria are met is identified below under the Management Response header. Any change in management would only apply to the PHMA where the trigger is tripped.

Habitat Triggers

The adaptive management approach also includes triggers based on Greater Sage-Grouse habitat. Habitat quality is addressed by adherence to the objectives contained in the plan amendment. The adaptive management triggers for habitat is based on the availability of habitat within PHMA, measured using a percent of habitat loss from a baseline of available Greater Sage-Grouse habitat at the signing of the final plan amendments.

Available habitat will be mapped within each PHMA using available information such as vegetation data from satellite imagery (e.g., reGAP, LANDFIRE), local monitoring, soils data, etc. As additional information is made available in the future it can be used to refine the baseline habitat areas that existed at the point the plan amendments are finalized (e.g., removing areas of high juniper density, cliffs, salt-desert scrublands). However, any such changes should reflect habitat as it occurred at the signing of the plan amendments and not reflect changes to habitat from that time. Changes from the baseline acreage

could occur through either the addition of habitat (e.g., juniper reduction projects) or reduction of habitat (e.g., wildfire). In either case, the percentages identified in the triggers are generated by comparing the availability of habitat at a point in time to the acres of habitat available at the signing of the plan amendments.

For both soft and hard triggers, nesting areas will be delineated using lek buffers based on published peer-reviewed data, unless local nesting areas have been specifically mapped by BLM and Forest Service and UDWR biologists using telemetry or other methods with appropriate sampling across the population. Wintering areas will be identified using UDWR mapping, in coordination with BLM and Forest Service biologists.

Habitat Soft Triggers

A habitat soft trigger would be met in PHMA if one of the following criteria is identified through monitoring:

a) 10 percent loss of total Greater Sage-Grouse habitat in PHMA; **OR**

b) 10 percent loss of habitat within nesting areas in PHMA; **OR**

c) 5 percent loss of habitat within UDWR mapped wintering areas in PHMA; **OR**

d) any one fire that burns 5 percent of total Greater Sage-Grouse habitat in PHMA.

For PHMA in the Ibapah and Hamlin Valley population areas, if a Greater Sage-Grouse habitat adaptive management trigger (hard or soft) from a Nevada land use plan is met on Greater Sage-Grouse habitat in Nevada that is adjacent to the Ibapah or Hamlin Valley PHMA, a soft trigger would be met for the Utah areas, regardless of whether the above criteria have been met or not.

The management to be applied if the soft trigger criteria are met is identified below under the Management Response header. The intent of the population soft trigger is to identify decreases in the availability of Greater Sage-Grouse habitat and adjust management before a hard trigger is met.

Habitat Hard Triggers

a) 20 percent loss of total Greater Sage-Grouse habitat in PHMA; **OR**

b) 20 percent loss of habitat within nesting areas in PHMA; **OR**

c) 20 percent loss of habitat within UDWR mapped wintering areas in PHMA.

The management to be applied if the hard trigger criteria are met is identified below under the Management Response header. Any change in management would only apply to the PHMA where the trigger is tripped.

MANAGEMENT RESPONSE

To be successful, an adaptive management strategy couples a change in management direction to an identified change in resource condition (e.g., meeting an identified trigger). The type of management response would vary whether a soft trigger is met versus a hard trigger. The larger deviation from natural variation associated with a hard trigger would necessarily correspond with a greater change in management.

The adaptive change in management will be targeted to respond/resolve the cause of the observed change in resource condition, to the extent it can be determined. A causal factor may be associated with one of the threats the USFWS identified in its 2010 listing determination, though additional monitoring information and research may also identify other causes that could result in reaching population or habitat triggers. It is also important to note that while one or more factors may be associated with a habitat or population decline, directly attributing a change to a specific cause or causes may not be possible. The complexity of some interactions may make it difficult to establish a direct cause-and-effect relationship for a specific cause or causes. Many factors have been suggested as affecting Greater Sage-Grouse populations and habitats throughout the species' range. These factors can interact in numerous potential complex relationships, making the identification of "the" specific cause or causes difficult. It can be difficult to separate proximate factors from ultimate factors leading to population declines. Further, Greater Sage-Grouse populations that use habitat owned or administered by multiple jurisdictions (e.g., private, state, tribal, or other federal) could result in causes of population or habitat declines that are not able to be ameliorated by the BLM.

If direct cause or causes cannot be identified, the change in management may need to address multiple threats that were identified in the area where the trigger was been met in order to alter a negative trend. Absence of a clear cause is not justification to not take some action to reverse a trend.

Management Response to Meeting Soft Triggers

Upon an annual review of monitoring data, if it is apparent that soft trigger criteria have been met for an area (see Spatial Scale discussion below) the BLM will determine if there is a specific cause or causes that are contributing to the decline within six months of identifying that the trigger has been met. In completing this evaluation, the BLM will coordinate with Greater Sage-Grouse biologists from multiple agencies, including the Forest Service, USFWS, NRCS, and UDWR. Through this coordination, the BLM will review available national, state-wide, and local data to determine if there is additional information that could identify the cause/causes of the declines. The BLM will also coordinate with field office/district and state agency specialists and local Greater Sage-Grouse working groups to identify additional information that could assist in identifying the cause/causes.

If it is determined that the decline is related to a natural population variation, no specific management actions would be required. However, if BLM management actions are determined to cause or contribute to the decline, the BLM manager would apply measures within their implementation-level discretion to mitigate the decline of populations and/or habitats to the area where the trigger has been met. These measures would apply more conservative or restrictive implementation conservation conditions, terms, or decisions within the agencies' discretion to mitigate the decline of populations and/or habitats. If identified, the management measures should address the specific causal factor(s) that resulted in the decline, with consideration of local knowledge and conditions.

Responses to soft triggers may require the adjustment of future project level/plan implementation activities in the short or long term, as consistent with the individual site-specific NEPA analyses. Soft trigger responses can come in the form of terms, conditions, design features, BMPs, or site-specific mitigation measures. Examples of soft trigger responses could include, but are not limited to:

- Extending seasonal restrictions for seasonal surface disturbing activities (provided as stipulations to a right-of-way grant or a condition of approval to an oil and gas lease),

- Reprioritizing wild horse and burro gathers;
- Applying sequential development after reclamation;
- Temporary area closures related to travel management; (2-year maximum);
- Modifying seasons of use for livestock grazing through annual permit authorizations; and/or
- Applying additional restrictions on discretionary activities, or reject the authorization if mitigation criteria cannot be met.

It is expected that monitoring and management in response to soft-triggers should preclude tripping a "hard" trigger, which signals more severe habitat loss or population declines.

Management Response to Meeting Hard Triggers

Hard triggers represent a threshold indicating that more direct and refined actions are quickly needed to stop a severe deviation from Greater Sage-Grouse conservation objectives set forth in the BLM plan. Upon documenting that a hard trigger has been met the BLM will review available and pertinent data, in coordination with Greater Sage-Grouse biologists from multiple agencies including Forest Service, UDWR, USFWS, and/or NRCS, to determine the causal factor(s) for the declines. The BLM and the team will also identify measures needed to address the causal factors and develop a corrective strategy for the area where the trigger has been met. The corrective strategy would include the applicable changes identified in **Table I-1** that address the causal factor, and could also include other management actions, which may require the need to amend or revise the RMP to address the situation and modify management.

If determining the causal factor and development of a corrective strategy is not completed within six months of documenting that the trigger has been met, all the plan level responses identified in **Table I-1** will be applied until the causal factor analysis is complete. Upon completion of the causal factor analysis any responses that don't address the causal factor(s) would be removed. In developing a corrective strategy, managers may select changes in management that are identified in **Table I-1**, Specific Management Responses that have already been analyzed for implementation. This table also identifies which decision from the BLM RMPA would be changed.

Table I-1
Specific Management Responses

Program	Adaptive Management Response[1]	Affected Decision Number
Sage-Grouse Management	If a hard-trigger is tripped in the Sheeprocks Population Area, adopt the PHMA boundary from Alternative B of the 2015 Final EIS and apply management as described in the Proposed Plan, except as modified below.	Modify MA-SSS-1 specific to Sheeprocks
	PHMA within a Population Area (also referred to as a biologically significant unit {BSU}) where a soft trigger has been reached would be the top priority for habitat improvement and restoration projects and for fuels reduction treatments. Areas within and adjacent to PHMA within a Population Area (BSU) where a hard trigger has been reached would be the top priority for regional mitigation habitat restoration and fuels reduction treatments.	Adjust: MA-VEG-1, MA-FIRE-1, and MA-SSS-3A to address specific area
	Collaborate with applicable government entities to implement intensive programs to reduce populations of Greater Sage-Grouse predators (e.g., ravens, red fox, badgers, raccoons, skunks, raptors), focusing on area-specific predators to provide Greater Sage-Grouse populations the best opportunity to recover while improving habitat conditions.	Adjust MA-SSS-3D to focus on area-specific predators
Vegetation Management	PHMA within a Population Area (BSU), would be a priority for regional mitigation, habitat restoration and fuels reduction treatments.	Adjust: MA-VEG-1, MA-FIRE-1, and MA-SSS-3A to address specific area
Wild Horse and Burro Management	Initiate emergency gathers to reduce wild horse and burro populations within affected area to low end of AML, subject to funding and holding space availability. If the population is within AML and the area does not meet Greater Sage-Grouse habitat objectives, reduce AML for the HMA within the affected area up to 25 percent to facilitate meeting habitat objectives.	Adjust: MA-WHB-7, MA-WHB-3, and MA-WHB-4 to address specific area
Wildland Fire Management	Reassess Greater Sage-Grouse habitat needs to determine if priorities for at-risk habitats, fuels management areas, preparedness, suppression and restoration have changed.	Adjust MA-FIRE-1 to address specific area
Livestock Grazing	In areas where a soft trigger was met, prioritize the completion of rangeland health assessments to determine if the area is meeting Utah's Rangeland Health Standards and is achieving the Greater Sage-Grouse habitat objectives (Objective SSS-3). Focus monitoring and management activities on allotments found not to be achieving Utah's Rangeland Health Standards and that have the best opportunities for conserving, enhancing or restoring habitat for Greater Sage-Grouse. For areas not achieving the Greater Sage-Grouse habitat objectives (Objective SSS-3), apply one or more of the adjustments to livestock grazing from MA-LG-6.	Adjust: MA-LG-4 and MA-LG-5 to address specific area

Table I-1
Specific Management Responses

Program	Adaptive Management Response[1]	Affected Decision Number
Rights of Way – Existing Corridors	Retain the corridors as mapped, but limit the size of new lines within the corridors to same as existing structures.	Augment MA-LR-2 and MA-LR-4 with additional criteria
Rights of Way – Outside of Corridors	Management of the affected PHMA Population Area (BSU) would change to exclude high voltage transmission lines or major pipelines that the corrective strategy identifies. No change in management would be made to distribution lines or minor pipelines.	Augment MA-LR-2 with additional criteria
Wind Energy Development	No change from Proposed Plan.	Not applicable
Industrial Solar	No change from Proposed Plan.	Not applicable
Comprehensive Travel and Transportation Management	If travel management planning has not been completed within Greater Sage-Grouse habitat, PHMA areas where the hard trigger was met would be the highest priority for future travel management planning efforts. If travel management has been completed within Greater Sage-Grouse habitat in the PHMA where the hard trigger was met, re-evaluate designated routes to determine their effects on Greater Sage-Grouse. If routes are found to be causing population-level impacts, revise their designation status to reduce the effect.	Adjust: MA-TTM-4, MA-TTM-2, MA-TTM-5, and MA-TTM-3 to address specific area.
Fluid Minerals	No change from Proposed Plan.	Not applicable
Locatable Minerals	No change from Proposed Plan.	Not applicable
Salable Minerals	No change from Proposed Plan.	Not applicable
Nonenergy Leasable Minerals	No change from Proposed Plan.	Not applicable

[1]Any change in management would only apply to the PHMA where the trigger is tripped.
Unless otherwise noted as a soft trigger response, all Adaptive Management Responses would be implemented where a hard trigger is reached.

While implementing the corrective strategy, new scientific information may become available demonstrating that the plan-level response(s) could be insufficient to stop the severe deviation from Greater Sage-Grouse conservation objectives set forth in the BLM plan. If this occurs, the BLM and its partners will review the new scientific information to determine how it may change the causal factor analysis and corrective strategy. If the BLM, in coordination with its partners, concludes that the responses in place would be insufficient, the BLM will implement necessary management to protect Greater Sage-Grouse and its habitat and to ensure that conservation options are not foreclosed in the area where the trigger has been met (e.g., a formal directive akin to BLM Instruction Memorandum 2012-043).

For those Population Areas (BSUs) that are directly connected to identified BSUs in adjacent states (Box Elder, Hamlin Valley, Uintah, and Rich), if a hard trigger is reached on one of the connected BSUs outside of the Utah sub-region, the applicable state wildlife agencies and BLM staff will convene to

determine the causal factor and propose project level responses, as appropriate, and discuss further appropriate actions that could be applied. The team will also investigate the status of the hard triggers in other BSUs within the PAC (in adjacent states) and will recommend the appropriate plan response. Adoption of any further actions at the plan level may require initiating a plan amendment process.

The management identified in the corrective strategy would be implemented until ten-year population trends reflect the natural fluctuations of a self-sustaining population. The BLM would determine the area reflects natural fluctuations for a self-sustaining population in coordination with Greater Sage-Grouse biologists from multiple agencies including Forest Service, UDWR, USFWS, and/or NRCS. Upon such a determination, the management would revert to the RMPA.

If all the leks in an area that has met a hard trigger are not active for ten years, becoming unoccupied by definition, the PHMA designation and all its associated management would be removed since there is no longer a greater sage-grouse population for which management should be prioritized.

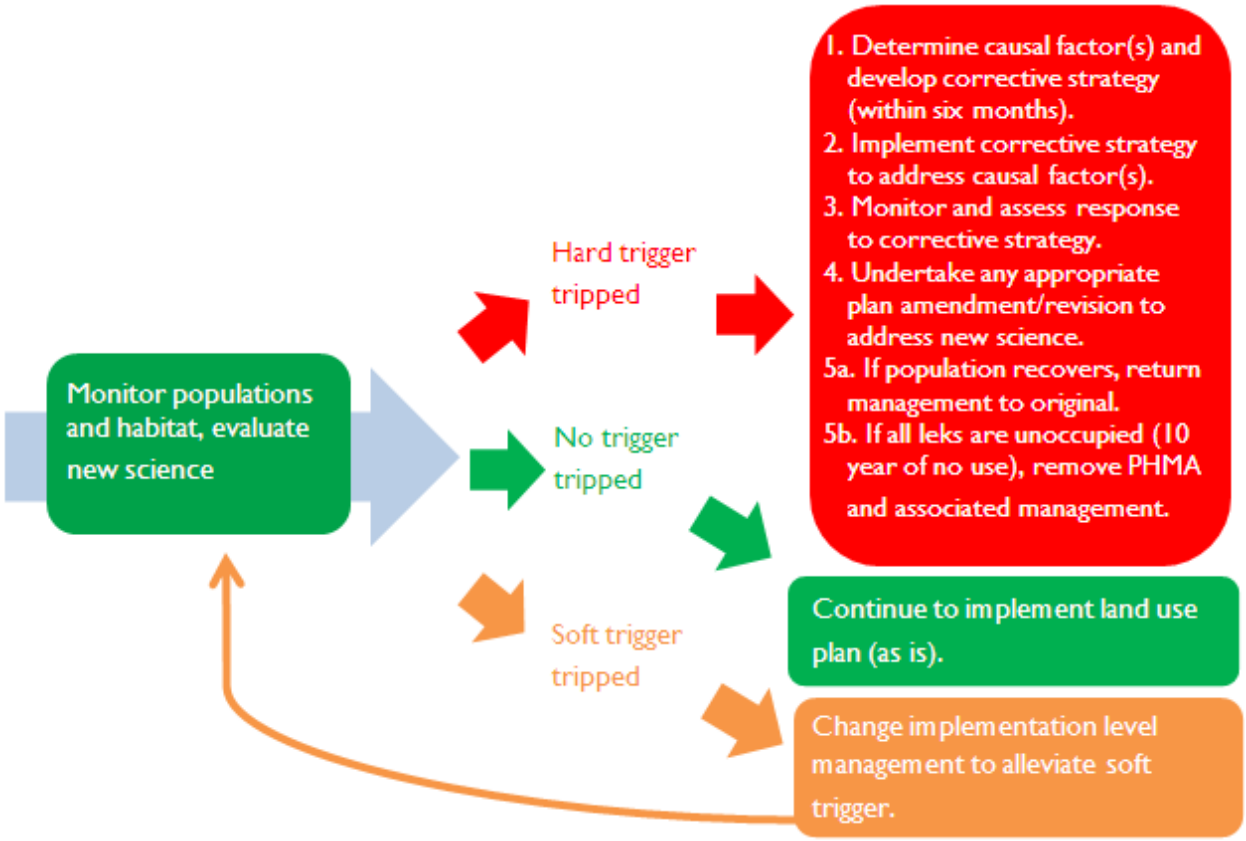
MONITORING

Monitoring is a critical part of implementing adaptive management. Through monitoring, the agencies determine when a trigger has been met, as well as whether management actions taken, including adaptive responses, are effective in increasing Greater Sage-Grouse habitat and populations. The following image shows how monitoring information will be integrated into implementation of the adaptive management plan.

This RMPA contains a Monitoring Framework Plan (**Appendix D**) that outlines monitoring of several aspects of Greater Sage-Grouse biological criteria and aspects of monitoring RMP effectiveness. The information collected through the Monitoring Framework Plan will be used by the BLM, among other available datasets, to determine when adaptive management hard and soft triggers for habitat are met.

The BLM will organize an adaptive management working group, inviting participation from the Forest Service, USFWS, local governments, and UDWR. This group will annually review monitoring information related to Greater Sage-Grouse populations and habitat availability to determine if an adaptive management trigger has been met.

The working group will evaluate Greater Sage-Grouse population data collected by the UDWR's lek counts, as well as habitat information available from the BLM's National Operation Center. Habitat information available from the BLM National Operation Center is based on remotely sensed sagebrush vegetation collected as part of the LANDFIRE Existing Vegetation Type layer. Habitat information may be adjusted based on locally available vegetation data, if agreed upon by all adaptive management working group members. However, the baseline for determining the percent loss for the purposes of the adaptive management triggers must remain associated with a consistent vintage, namely the finalization of the RMP-decisions. It is also important that the vegetation data remain at a scale consistent with implementation of the adaptive management plan (BSUs), and remain at such a consistent scale over time.



SPATIAL SCALE

Greater Sage-Grouse biologists, assigned to the multi-agency adaptive management working group, will assess population and habitat adaptive management triggers for PHMA within each Population Area (also referred to as BSUs when coordinating with other states). A BSU is a geographical/spatial area that contains the relevant habitats that are used by Greater Sage-Grouse. In Utah, the BLM is applying adaptive management monitoring and management to the total PHMA area associated with a Greater Sage-Grouse population area. When coordinating with adjacent states in regional monitoring and management, these areas will be referred to as BSUs. These areas generally align with habitat areas within the State of Utah's Sage-Grouse Management Areas (SGMAs) with two adjustments. One adjustment includes some PHMA in the Carbon area that was not identified as an SGMA. Portions of the Anthro Mountain and West Tavaputs areas are combined with Emma Park area for adaptive management purposes. The other adjustment is the Emery population (Wildcat Knoll and Horn Mountain) that is combined with the Parker Mountain SGMA but will be considered separately because the population is small in size and effects to this population would be masked by what is going on in the much larger Parker SGMA. As a result, PHMA in the following areas will be monitored and evaluated for population and habitat adaptive management triggers: Box Elder, Rich, Uinta, Strawberry, Carbon, Emery, Parker, Panguitch, Bald Hills, Hamlin, Sheeprocks, and Ibapah. These areas generally represent population use areas within the sub-region.

As described in the Monitoring Framework Plan, habitat data can be collected at these "BSU" scales and can be both aggregated up to the state-wide population, WAFWA Management Zone, or other

reporting units. Similarly, more specific habitat delineation may be gathered identifying specific seasonal use patterns and even daily movements and preferences. However, in monitoring landscape changes in habitat and effects on Greater Sage-Grouse populations, the interagency team of Greater Sage-Grouse biologists identified the Population Area/SGMA/BSU scale as best capturing the needed metrics at a meaningful and consistent scale. The boundaries of these and other reporting units may be adjusted over time based on the understanding of local population interactions and climate variation.

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Appendix K

Greater Sage-Grouse Habitat Baseline and Habitat Update Protocol

Appendix K. Greater Sage-Grouse Habitat Baseline and Habitat Update Protocol

BACKGROUND

Habitat for Greater Sage-Grouse is the most critical element in any efforts to manage and conserve the species in its range across the western United States. Consequently, considerable time and expense has been dedicated to identifying current, historical, and potential expansion of Greater Sage-Grouse habitat and how it functions to provide the life sustaining elements for the species. Conservation of habitat is the foundation for this resource management plan amendment (RMPA). Any Greater Sage-Grouse conservation effort in Utah, as stated in the Conservation Plan for Greater Sage-Grouse in Utah (State Conservation Plan; UDWR 2013), must be "designed to protect high-quality habitat, enhance impaired habitat and restore converted habitat to support, in Utah, a portion of the range-wide population of Greater Sage-Grouse necessary to eliminate threats to the species."

According to Manier et al. (2013), Greater Sage-Grouse are currently estimated to occupy 165 million acres (668,000 square kilometers) across the western United States and Canada (Knick and Connelly 2011), and this range encompasses tremendous variability in habitat conditions, anthropogenic activities, and Greater Sage-Grouse populations. Development of comprehensive monitoring approaches leads to formal recognition that habitat selection assessments are needed to utilize approaches that address multiple spatial scales to represent selection processes of the animals (Connelly et al. 2003; Stiver et al. 2010). The first-order (1) is the broad geographic range that defines the species distribution Greater Sage-Grouse (2) characterization of the second-order hinges on large, relatively intact regions of habitat identified using populations or subpopulation distributions (for example, geographic connections among leks or regional population connectivity using genetics) to link habitats to Greater Sage-Grouse use. The third-order (3) requires refinement from delineations of populations/subpopulations within the species range in a given area to availability of the seasonal habitats (for example, nesting and winter habitats), and connectivity of seasonal habitats to support migration. Finally, assessment can be made of fourth-order selection (for example, daily site selection and behavioral observations) by (4) quantifying food and cover attributes and foraging behavior at particular sites. In practice, selection of food items is nested within selection of the feeding site because selection of a particular site determines the array of food items available to be selected; importantly, habitat value and use will best be determined using a combination of these characteristics (not one alone). To accurately characterize Greater Sage-Grouse habitat/range selection for a given population at the first- and second-orders, or landscape spatial scales, the migratory nature (seasonal movements) of the population must be well understood (Connelly et al. 2000), and this may include very large areas on an annual basis. It has been suggested that migratory populations may range across hundreds of square miles (Connelly et al. 2003).

HABITAT IDENTIFICATION PROCESS

The UDWR is the primary entity responsible for management of Greater Sage-Grouse populations in Utah and is also the lead entity in identifying and mapping Greater Sage-Grouse distribution. Information on the distribution identification process followed in Utah was summarized and is included in the Utah Greater Sage-Grouse Management Plan (State Management Plan; UDWR 2009). Although this plan has

been superseded by the State Conservation Plan, the now dated Management Plan provides relevant information on the habitat identification process.

Following Doherty's work in Wyoming, Montana, and Colorado (Doherty 2008), core Utah Greater Sage-Grouse breeding habitats were mapped. The mapping was accomplished utilizing occupied lek densities and associated male Greater Sage-Grouse maximum lek attendance data for the period 1999–2008 (10 years), referred to as the breeding bird density mapping. The breeding bird density mapping identified four density levels or parameters. The first parameter identified areas where 25 percent of the state's total 10-year average spring breeding Greater Sage-Grouse males (indicator for populations) are located. These areas symbolize the highest statewide density of breeding males on leks and can also be viewed as high-priority leks or those leks and associated habitats that individually contribute the most to the state's Greater Sage-Grouse total population. The second parameter identified areas where 50 percent of the state's total breeding Greater Sage-Grouse males are found. This was repeated for the 75 percent and 100 percent of spring breeding Greater Sage-Grouse males until all occupied leks were classified. Viewed from the converse, the total known spring Greater Sage-Grouse statewide population was indicated by the combined area of all parameters.

The breeding bird density mapped habitat was further refined over time as additional population and habitat area inventory, studies, and other information were available. This included information provided by other field specialists, other agencies, local and special interest groups, private landowners, and academia. Adjustments to habitat boundaries have been made based on verified information. The mapped occupied habitat boundaries in each population area include areas currently occupied by a population or populations of Greater Sage-Grouse and are based upon the location of occupied leks, the identification of nesting and brood-rearing habitat, and associated winter and other habitat.

For decades prior to the current review, the UDWR has been supporting research and community-based conservation efforts to learn more about the ecology of the species. Appendix 8 of the State's 2013 Conservation Plan contains a listing of research studies and reports on Greater Sage-Grouse conducted in Utah. To facilitate this effort, the UDWR established ten Local Area Working Groups under the general direction of Utah State University, with the first established as far back as 1996. These Local Area Working Groups were composed of private interests and governmental entities, and were tasked to assess the local nature and scope of the threats to the species, and to recommend a course of action to address those threats. Because of this early and ongoing assessment, the State of Utah is fortunate to have a high level of knowledge about many of the populations, including seasonal range, migration routes, and other factors known to be essential to maintenance of the species, all in the context of Utah's unique conditions.

Greater Sage-Grouse distribution in Utah is highly influenced by the geography of Utah, which is characterized by mountainous terrain, separated by broad valleys in the Great Basin, and by deeply incised canyons in the Colorado Plateau. Greater Sage-Grouse habitat may be found in intact blocks in the Great Basin, or in disconnected "islands" of habitat in the Colorado Plateau.

The UDWR's broadly depicted occupied Greater Sage-Grouse habitat maps are intended to encompass the range used throughout the year by known Greater Sage-Grouse populations. Broad based maps that identify the Greater Sage-Grouse range are necessary to include a variety of important seasonal habitats and movement corridors that are spread across Utah's geographically diverse and naturally fragmented landscape. Greater Sage-Grouse, frequently described as "landscape-scale species," may use multiple

areas to meet seasonal habitat needs throughout the year and the resulting patchwork of habitats (e.g., winter, breeding, nesting, early brood-rearing, late brood-rearing, transitional, and movement corridor habitats) can encompass large areas, sometimes ranging between 180,000 and 1.2 million acres. Broad range maps increase the likelihood that all seasonal habitats (including transition and movement corridors) are included, especially where there are information gaps on Greater Sage-Grouse populations' habitats. Inevitably these Greater Sage-Grouse range maps include a patchwork of Greater Sage-Grouse habitats and non-habitats. Non-habitats, in and of themselves, may not provide direct habitat value for Greater Sage-Grouse (e.g., deep canyons or water bodies), but may be crossed by Greater Sage-Grouse when moving between seasonal habitats.

To assist in refining Greater Sage-Grouse occupied habitat in Utah, telemetry and GPS data have been collected for a portion of the Greater Sage-Grouse populations in the state. Telemetry and GPS data provide the UDWR with site-specific data on how Greater Sage-Grouse use the landscape. Telemetry information provides a snapshot of how Greater Sage-Grouse used the landscape in specific years but does not necessarily represent how those same birds use the landscape every year. To ensure all potential areas used by Greater Sage-Grouse are identified and adequately managed to maintain and enhance Greater Sage-Grouse populations, non-sagebrush habitat types (i.e., alfalfa fields) adjacent to telemetry locations are likely included in UDWR occupied Greater Sage-Grouse range maps. Similarly, for populations where there is no telemetry data, the UDWR occupied Greater Sage-Grouse range maps are intentionally broad in an attempt to include all possible areas, adjacent or nearby, that may be used by Greater Sage-Grouse as habitat or movement corridors. In general, maps are refined as additional information on habitat conditions, Greater Sage-Grouse habitat use patterns, population susceptibility to stochastic events, and impacts of vegetation treatment are available.

In summary, broad maps are more likely to include all seasonal habitat areas important for each population and can be refined as management agencies gain more information. Occupied habitat maps used as a baseline for this RMPA/EIS currently include known use areas, areas of potential habitat, as well as areas of non-habitat.

PLANNING REQUIREMENTS

Though the BLM manages the habitat for wildlife species, the UDWR is the agency primarily responsible for managing Greater Sage-Grouse in Utah. In the past, the UDWR has been the primary repository for information regarding Greater Sage-Grouse habitat in Utah. The range maps represent a broad combination of information sources, including intact sagebrush areas, field observations, radio-telemetry data, historic habitats, professional judgment, and sagebrush areas adjacent to the previously mentioned areas. Since telemetry data have not been collected for every Greater Sage-Grouse population in the state, to refine the broader identified ranges, the aforementioned other sources of information are used in conjunction with telemetry and GPS data to create the Greater Sage-Grouse range maps. For the BLM's purposes of maintaining and enhancing Greater Sage-Grouse persistence on the landscape, all Greater Sage-Grouse occupied range identified and mapped by the UDWR is included as the baseline for planning to ensure that all habitats that are or may be necessary for long-term Greater Sage-Grouse persistence are including for assessment and evaluation in the planning process.

In general, the planning schedule and analysis process required a cutoff point for any further consideration of additional habitat information. However, the identification and mapping of Greater Sage-Grouse habitat is an ongoing effort.

The mapped occupied range map used as a baseline for this planning process is not intended to represent a survey-grade boundary of Greater Sage-Grouse habitat and is not expected to be exclusively used at the project level. In this sub-regional RMPA, the BLM is making broad-scale land use planning decisions that are connected with similarly broad-scale RMPAs being simultaneously completed across the range of Greater Sage-Grouse (see Section 1.1 of the 2015 Final EIS). Based on the scale of planning (landscape level), baseline habitat represented in this RMPA primarily represents a portion of the first and the second order habitat within Utah discussed in the background section above.

Not only is the scale of mapping appropriate given the scale of planning, but it is also appropriate given the stated goals and objectives of this RMPA/EIS. Through this planning process the BLM aims to not only stop the decline of Greater Sage-Grouse populations, but to increase populations, which may require protection and restoration of historic use areas, or stated another way, protection of potential habitat near existing Greater Sage-Grouse populations that does not currently support Greater Sage-Grouse populations but is ecologically capable of doing so with proper management.

HABITAT UPDATES

As expressed in the 2013 State Conservation Plan for Utah, the implementation of any plan should be accompanied by efforts to refine mapping of habitats, which includes this RMPA/EIS. These efforts should be coordinated among federal, state, and local agencies; private landowners; Greater Sage-Grouse working groups; and academia that may choose to participate. On-the-ground projects should also contribute to this refined habitat mapping effort, at a level commensurate with the decisions to be made.

Habitat map updates will be made when agencies with special expertise and legal jurisdiction for Greater Sage-Grouse and their habitat gain more information on the presence/absence of Greater Sage-Grouse; obtain new or additional baseline population data, including information on the distribution and connectivity of Greater Sage-Grouse populations with other populations; identify Greater Sage-Grouse seasonal habitats and movements; and identify and quantify sagebrush habitats, the condition of those habitats, and connectivity within populations.

While refinements to habitat maps are necessary and appropriate, the RMPA includes management that gives the agency discretion to authorize actions in non-habitat areas under identified conditions. This eliminates the need to make constant site-specific adjustments to Greater Sage-Grouse habitat management area boundaries through the land use planning processes, which is neither consistent with the landscape nature of management actions in the BLM RMPs, nor consistent with application of conservation measures at a scale and timing needed to protect Greater Sage-Grouse.

Prior to considering proposed actions within Priority Habitat Management Areas (PHMA), an evaluation should be conducted by a qualified biologist in collaboration with federal and state biologists, including a field investigation if needed. To this end, additional site-specific information associated with local surveys could result in a more precise delineation of habitat boundaries. If during implementation of the RMPA or evaluation of a proposed action there are discrepancies between the LUP maps and the on-the-ground conditions, the on-the-ground information should be used to determine where the management included within this RMPA/EIS would apply. A similar site-specific review process has been effectively employed while Greater Sage-Grouse occupied habits have been under interim management, allowing proposed projects in areas identified as non-habitat to proceed.

When considering new or local information for application of management actions, the goal is to provide a transparent and consistent scientific-based process for adjusting Greater Sage-Grouse habitat that will promote conservation of Greater Sage-Grouse in Utah. To that end, the following would be considered when updating the Greater Sage-Grouse habitat delineations:

Occupied Habitat

- Determination of adjustments in the delineation of mapped occupied Greater Sage-Grouse habitat would be coordinated among federal, state, and local agencies; academia; and technical specialists through a Greater Sage-Grouse Working Group.
- Adjustments in mapped occupied Greater Sage-Grouse habitat will be based on the best available information, including field observations and inventories, radio-telemetry data, GPS collar data, habitat assessments, site visits, supporting research and science, restoration treatments, disturbance, technical expertise, and accepted modeling (including ground-truthing).
- Review of Greater Sage-Grouse mapped occupied habitat and proposed adjustments could occur anytime there is a need to adjust the habitat baseline. At a minimum, the BLM would evaluate the mapped occupied habitat boundaries approximately every 5 years in conjunction with land use plan evaluations.
- In general, mapped occupied habitat boundaries would not be adjusted to exclude non-habitat areas if those areas of non-habitat are wholly contained in the mapped occupied habitat boundaries, considering the level of habitat identification needed commensurate with the level of decision-making.
- Habitat altered by fire would not be removed as occupied habitat. If the BLM, in consultation with other agencies, determines that rehabilitation or restoration of mapped occupied Greater Sage-Grouse habitat is not feasible and that the area no longer contributes to any part of the Greater Sage-Grouse life cycle, adjustments may be made to exclude the area.
- Determinations on adjustments to mapped occupied Greater Sage-Grouse habitat would be by consensus of the Greater Sage-Grouse Working Group. If consensus cannot be reached, the BLM Utah State Director would determine whether occupied habitat boundary adjustments should be made.

Priority Management Areas

- Because PHMA boundaries are a land use plan action, adjustments are a BLM responsibility and will comply with the applicable BLM planning regulations and policies.
- Adjustments in delineation of PHMA would be coordinated among federal, state, and local agencies and interested parties.
- Adjustments in delineation of PHMA would be based on the best available information, including field observations and inventories, radio-telemetry and GPS data, habitat assessments, site visits, supporting research and science, restoration treatments, disturbance, technical expertise, and accepted modeling (including ground-truthing).
- Review of PHMA boundaries would generally be done every 5 years (for the BLM, this would be in conjunction with land use plan evaluations), unless more frequent adjustments are needed.
- Consistent with landscape-level decision making, PHMA would be identified at a second-order level (Manier et. al. 2013), and as such, boundaries would generally not be adjusted to exclude non-habitat areas if those areas are wholly contained within the LUP-identified boundaries.

- Areas within PHMA that are not currently used by Greater Sage-Grouse, but are ecologically capable of supporting Greater Sage-Grouse, would not be removed from PHMA boundaries.
- The Greater Sage-Grouse Working Group would make adjustment recommendations to PHMA to the BLM Utah State Director, who will make the final determination on whether the PHMA boundary adjustment is appropriate.
- New areas of mapped Greater Sage-Grouse occupied habitat could be identified as PHMA following the appropriate BLM planning rules and procedures. The administrative process through which boundary adjustments will be made would be determined on a case-by-case basis.

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